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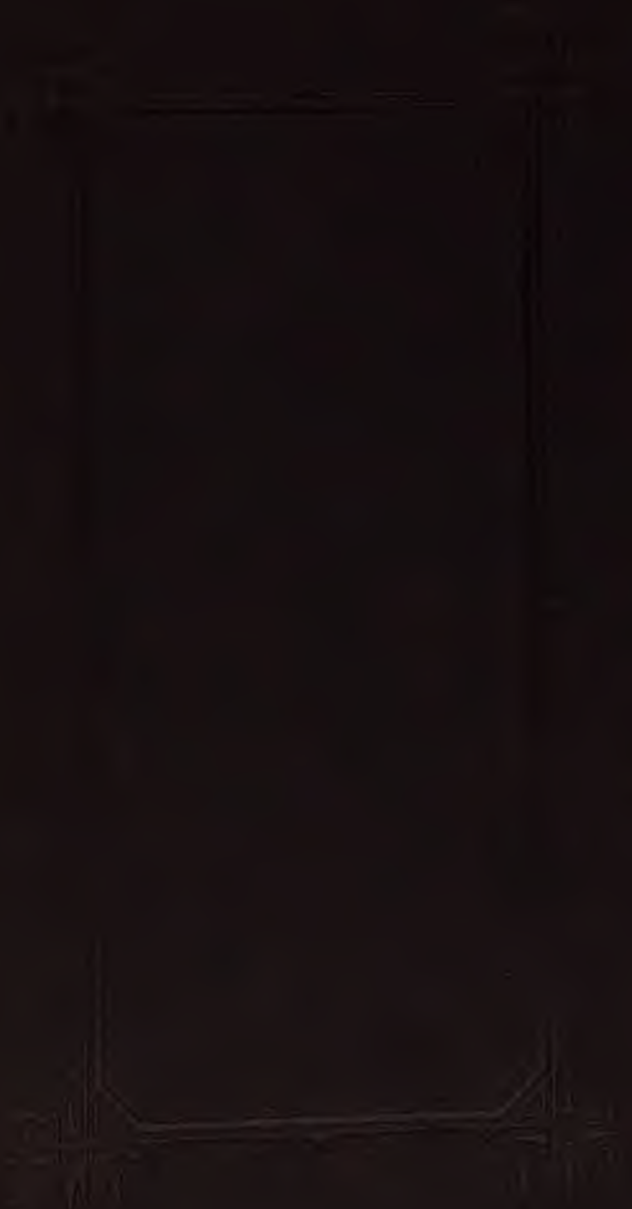

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VETERINARY PHARMACOPŒIA

A

PHARMACOPŒIA

INCLUDING THE OUTLINES
OF
MATERIA MEDICA AND THERAPEUTICS
FOR THE USE OF
PRACTITIONERS AND STUDENTS
OF
VETERINARY MEDICINE

BY

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THIRD EDITION

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PREFACE TO THE THIRD EDITION

THIS edition mainly differs from the first and second in containing the "*Natural Orders*" to which the organic substances of the 'Pharmacopœia' belong.

Several preparations, kindly suggested by practitioners and pupils, have been added, and the entire work has undergone careful revision.

The author is much indebted to his Demonstrators—Messrs. James Bayne, F.C.S., and Cuthbert Neison, F.C.S.—for the valuable assistance they have rendered him in the performance of his task.

ROYAL VETERINARY COLLEGE, LONDON;
June, 1880.

PREFACE TO THE FIRST EDITION

This work is designed for the use of practitioners and students of veterinary medicine.

The agents are arranged in alphabetical order, according to the plan adopted in the 'British Pharmacopœia,' and are treated of under the following heads:

1. Latin Pharmaceutic Name.
2. English Pharmaceutic Name.
3. Synonyms.
4. Natural Order.
5. Composition.
6. Mode of Preparation.
7. Characters and Tests.
8. Actions and Uses.
9. Doses.
10. Modes of Application.
11. Incompatibles.
12. Antidotes.
13. Preparations.

Many medicines bearing old and familiar names have, for the sake of order, received new titles; thus, the "Diuretic Mass" of Morton is, in the present work, termed Massa Resinæ composita. By whatever name, however, preparations may be known to the reader, they can be readily found by reference to the General Index.

The modes of preparation, characters, and tests, are, in most cases, the same as those given in the 'British Pharmacopœia.'

The composition of bodies is expressed in modern atomic weights, a table of which, together with a list of the old ones, will be found in the Appendix.

In the directions for preparing chemico-pharmaceutic substances old chemical names are, for the most part, employed; whereas, in explaining reactions and decompositions, that which the author believes to be the best of the new systems of nomenclature, supplemented, where necessary, by the old, is adopted.

The incompatibles mentioned are those recorded as such by the most eminent authorities, although, no doubt, in many instances, the incompatibility indicated is based upon hypothesis rather than upon the results of observation or experiment.

For a more detailed account of the actions and uses of veterinary medicines the reader is referred to the books of Dun and Morton, also to the forthcoming work on 'Veterinary Therapeutics' by Professor George Brown.

To the last-named gentleman the author is deeply indebted for his kind assistance in revising those portions of the work which are comprised under the sub-headings "Doses" and "Actions and Uses," as well as for many valuable suggestions made during the progress of the volume through the press.

The principal sources, in addition to the 'British Pharmacopœia' of 1867, from which the author has obtained much valuable information, are Morton's 'Veterinary Pharmacy,' Dun's 'Veterinary Medicines,' Macnamara's edition of 'Neligan's Medicines,' and Garrod's 'Materia Medica and Therapeutics.'

ROYAL VETERINARY COLLEGE;
October, 1869.

A

VETERINARY PHARMACOPŒIA

ACACIÆ GUMMI

GUM ACACIA

Synonym.—Gum Arabic.

Composition.—An exudation from certain species of acacia, belonging to the natural order *Leguminosæ*, and consisting, when pure, of arabin, $C_{12}H_{22}O_{11}$.

Characters and Tests.—Spheroidal fragments, with shining surfaces; nearly colourless; bland and mucilaginous taste; soluble in water, insoluble in alcohol, ether, and oils. Its cold aqueous solution gives a white gelatinous precipitate with lead subacetate, but no blue colour with iodine water, unless it be adulterated with starch.

Actions and Uses.—See Mucilago Acaciæ.

ACETUM

VINEGAR

Composition.—Water holding in solution about 4·67 per cent. of acetic hydrate (glacial acetic acid), together with colouring and flavouring matters.

Mode of Preparation.—Weak alcoholic liquids, *e. g.* beer, poor wines, &c., are exposed to the air and suffered to undergo the acetous fermentation, whereby the alcohol is oxidized first into aldehyd, and finally into acetic acid, thus:

$$\begin{array}{llllllll} & \text{Alcohol} & & \text{Oxygen.} & & \text{Aldehyd.} & & \text{Water.} \\ 1. & C_2H_6O & + & O & = & C_2H_4O & + & H_2O \\ & \text{Aldehyd.} & & \text{Oxygen.} & & \text{Acetic Acid.} & & \\ 2. & C_2H_4O & + & O & = & HC_2H_3O_2 & & \end{array}$$

Characters and Tests.—A liquid of a brown colour, acetous odour, and sour taste. Sp. gr. 1·017 to 1·019. With barium chloride it should give no, or a very slight, precipitate, showing the absence, or the presence of only a minute quantity, of sulphuric acid.*

Actions and Uses.—*Internally*:—Refrigerant to allay febrile heat; styptic, astringent, and diuretic; also lithonlytic for calculi and urinary deposits consisting of calcium or magnesium phosphate or carbonate. Likewise employed as an antidote to poisoning by the alkalies and their carbonates. Very seldom used, however, internally.

Doses.—HORSE, 1 to 2 fluid ounces.—CATTLE, 1 to 2 fluid ounces.—SHEEP, 1 to 2 fluid drachms.—PIG, 1 to 2 fluid drachms.—DOG, 10 to 20 minims.

Incompatibles.—Alkalies; earths; and all carbonates.

Antidotes.—Potassium, sodium, calcium, or magnesium carbonate or bicarbonate.

Preparation.—Acetum Cantharidis.

ACETUM CANTHARIDIS

VINEGAR OF CANTHARIDES

Composition. — An impure solution of cantharidin, $C_5H_6O_2$, in acetic acid.

---

* The addition of one part of sulphuric acid to 999 of vinegar is permitted by law.

Mode of Preparation.—Take of—

Cantharides in powder . . .	2 ounces.
Glacial Acetic Acid	2 fluid ounces.
Acetic Acid	18 fluid ounces, or a sufficiency.

Mix thirteen fluid ounces of the acetic acid with the glacial acetic acid, and digest the cantharides in this mixture for two hours at a temperature of 200° F. Cool the ingredients, transfer them to a percolator, and when the liquid ceases to flow, pour five fluid ounces of acetic acid over the residue in the apparatus. When the percolation is complete, press the contents of the percolator, filter the product, mix the liquids, and add sufficient acetic acid to make one pint.

Actions and Uses.—*Externally:*—Counter-irritant. Vesicant and rubefacient in local congestion, and in irritation of important organs.

ACIDUM ACETICUM

ACETIC ACID

Composition.—Water mixed with 33 per cent. of acetic hydrate (glacial acetic acid).

Mode of Preparation.—By distilling a mixture of crystallized sodium acetate and sulphuric acid; sodium sulphate remains in the retort, while water and acetic acid, in the proportions above named, pass over into the receiver.

$$\overset{\substack{\text{Sodium}\\ \text{Acetate.}}}{2NaC_2H_3O_2} + \overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{H_2SO_4} = \overset{\substack{\text{Sodium}\\ \text{Sulphate.}}}{Na_2SO_4} + \overset{\substack{\text{Acetic}\\ \text{Acid.}}}{2HC_2H_3O_2}$$

Characters and Tests.—A colourless, sour liquid, having a pungent odour. Sp. gr. 1·044. Should leave no residue when evaporated, and will give no precipitate with hydrosulphuric acid, barium chloride, or silver nitrate, if free from lead, copper, sulphuric acid, and chlorine. Put a fluid drachm of the acid, mixed with half an ounce of distilled water and half a drachm of pure hydrochloric acid, also a few pieces of granulated zinc, into a flask. While effervescence continues suspend a slip of white blotting-paper moistened with a solution of subacetate of lead in the upper part of the flask above the liquid for about five minutes. The paper should not become discoloured, and thus indicate the absence of sulphurous acid.

Actions and Uses.—*Externally*:—Stimulant, astringent, styptic, rubefacient, and vesicant. As a caustic for the removal of warts and similar growths. For the removal of scurf in ringworm, mallenders and sallenders, scab, and mange.*

Preparations.—Acetum Cantharidis; Acidum Aceticum dilutum.

ACIDUM ACETICUM DILUTUM

DILUTED ACETIC ACID

Composition.—Water mixed with 3·77 per cent. of acetic hydrate (glacial acetic acid).

Mode of Preparation.—Take of—

Acetic Acid	1 pint.
Distilled Water	7 pints.

Mix.

Characters and Tests.—Colourless, sour liquid. Sp. gr. 1·006.

Actions and Uses.
Doses.
Incompatibles.
Antidotes.
} Similar to vinegar. See Acetum.

---

* For these purposes, and as an astringent and styptic, impure pyroligneous acid is preferred to Acidum Aceticum, on account of the former containing carbolic acid and similar compounds.

ACIDUM ACETICUM GLACIALE

GLACIAL ACETIC ACID

Synonyms.—Acetic Hydrate; Hydrated Acetic Acid.

Composition.—$HC_2H_3O_2$.

Mode of Preparation.—By distilling a mixture of concentrated sulphuric acid and sodium acetate deprived of its water of crystallization by fusion; sodium sulphate remains in the retort, and glacial acetic acid passes over into the receiver. See Acidum Aceticum for an explanation of the decomposition.

Characters and Tests.— At ordinary temperatures a colourless liquid, with a pungent odour and sour taste. Sp. gr. 1·065 to 1·066. Cooled to 34° F. it crystallizes and remains solid unless heated to 48° F. Tested for sulphurous acid, as directed under Acidum Aceticum, it should give no indication of this impurity.

Actions and Uses.—*Internally:*—Irritant poison. *Externally:*—Rubefacient, vesicant, and caustic. Used to destroy warts.

Antidotes.—See Acetum.

Preparations.—Acetum Cantharidis; Mistura Creasoti.

ACIDUM ARSENIOSUM

ARSENIOUS ACID

Synonyms.—Arsenious Anhydride; White Arsenic.

Composition.—As_2O_3.

Mode of Preparation.—By roasting arsenical ores, *e. g.*

arsenical pyrites, FeSAs, in a current of air; the arsenicum combines with oxygen and becomes arsenious anhydride, which is purified by sublimation.

Characters and Tests.—Heavy, white, glistening powder, or in translucent masses resembling porcelain. Completely volatile at 400° F. Sublimed in a test-tube, it condenses in brilliant octahedral or triangular crystals. Soluble in water 1 in 100 parts. Its aqueous solution furnishes a yellow precipitate (silver arsenite) with silver ammonio-nitrate, and a green precipitate (copper arsenite) with copper ammonio-sulphate. These precipitates are soluble in ammonia and in nitric acid.

Actions and Uses.—*Internally*:—In excessive doses, an irritant poison; in medicinal doses, alterative and tonic in chronic rheumatism, paralysis, epilepsy, chorea, farcy, and mange. *Externally*:—Used in the cure of mange, scab, and other skin diseases; also as a caustic to eradicate warts, and to produce the sloughing and effect the removal of malignant tumours. When used externally, and especially for the latter purpose, arsenious acid must be employed with great caution, as it is liable to be absorbed and to kill the patient.

Doses.—Cattle, 5 to 10 grains.—Horse, 5 to 10 grains. —Sheep, 1 to 2 grains.—Pig, $\frac{1}{2}$ to 2 grains.—Dog, $\frac{1}{15}$ to $\frac{1}{10}$ of a grain.

Modes of Application.—*Internally*:—The powder sprinkled over, or mixed with, the animal's food.* *Externally*:—Liquor Arsenicalis; Unguentum Arsenici.

Antidotes.—Freshly-made moist hydrated peroxide of iron; magnesia; cold affusions; inhalation of ammonia.

Preparations.—Liquor Arsenicalis; Unguentum Arsenici.

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* See Liquor Arsenicalis, a better form of arsenical medicine for internal use.

ACIDUM CARBOLICUM

CARBOLIC ACID

Synonyms.—Carbolic Hydrate; Phenic Acid; Phenol; Phenylic Alcohol.

Composition.—HC_6H_5O.

Mode of Preparation.—Those portions of coal-tar oil which distil between 300° F. and 400° F. are mixed with a strong and boiling solution of potassium hydrate. The resulting potassium carbolate is decomposed by hydrochloric acid, and the liberated carbolic acid rectified by distillation off calcium chloride. The calcium chloride deprives the acid of moisture.

	Carbolic Acid.		Potassium Hydrate.		Potassium Carbolate.		Water.
1.	HC_6H_5O	+	KHO	=	KC_6H_5O	+	H_2O

	Potassium Carbolate.		Hydrochloric Acid.		Carbolic Acid.		Potassium Chloride.
2.	KC_6H_5O	+	HCl	=	HC_6H_5O	+	KCl

Characters and Tests.—Acicular crystals, which, when freshly prepared and quite pure, are colourless, but are often brown or turn so by keeping. At 95° F. they become an oily liquid, having an odour and taste like creasote. Sp. gr. 1·065; boiling-point 370° F. Exposed to the air, the crystals absorb moisture and liquefy. The acid is slightly soluble in water, 1 in 15 parts, but freely soluble in glycerin, alcohol, and ether. About a grain of hypochlorite of calcium added to a little aqueous solution of carbolic acid, placed in a test-tube, produces, after agitation, the addition of a few drops of ammonia, and the application of a gentle heat, a bright blue colour with a tinge of green. An aqueous solution of carbolic acid will also give a blue colour with a few drops of ferric chloride. One drachm of the acid, if pure, completely dissolves on being shaken with half a pint of warm water.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses it is occasionally employed as an anthelmintic; also given to dogs to allay vomition. *Externally*:—Caustic, disinfectant, astringent, and styptic; applied to cancerous sores and ulcers which emit a fetid odour, *e. g.* canker and thrush in the foot of the horse, and foot-rot in sheep. It modifies suppuration and facilitates cicatrization when applied to wounds. Said to render inert the virus of cholera, cattle plague, and other contagious disease.

Doses.—*Crystals*:—HORSE, 20 to 80 grains.—CATTLE, 20 to 80 grains.—SHEEP, 5 to 15 grains.—PIG, 5 to 15 grains.—DOG, 1 to 5 grains.

Fluid:—HORSE, 20 to 80 minims.—CATTLE, 20 to 80 minims.—SHEEP, 5 to 15 minims.—PIG, 5 to 15 minims.—DOG, 1 to 5 minims.

Modes of Application.—*Internally*:—Dissolved in dilute spirit of wine, or made into a bolus with linseed meal or common mass. *Externally*:—As a caustic, the undiluted acid; for other purposes, in the form of lotion, liniment, or ointment.

Buildings may be disinfected (?) and the atmosphere impregnated with the acid by steeping rags in it and then suspending them in various parts of the room, stable, &c.; or the acid, in a diluted form,* may be sprinkled over floors and walls.

Antidotes.—Albumen; soap; demulcent drinks.

Preparations.—

Glycerinum Acidi Carbolici.
Linimentum Acidi Carbolici.
Lotio Acidi Carbolici
Unguentum Acidi Carbolici.
Collodium Hæmostatica.

---

* Pour an ounce or two of the fluid acid into a gallon bottle, nearly fill the bottle with water, shake, and set aside for twenty-four hours. From the undissolved acid decant the aqueous solution for use.

ACIDUM GALLICUM

GALLIC ACID

Synonym.—Gallic Acid.

Composition.—$H_3C_7H_3O_5$, H_2O.

Mode of Preparation.—Take of—

Galls, in coarse powder	1 pound
Distilled Water	A sufficiency.

Place the powdered galls in a porcelain dish, pour on as much water as will convert it into a thick paste, and keep it in this moist condition for six weeks, at a temperature between 60° and 70°; at the end of that time boil the paste for twenty minutes with forty-five ounces of water, strain through calico, and when the fluid has cooled collect on the crystalline deposit which has formed and let it drain. If the gallic acid is required very pure it should be recrystallized.

Characters and Tests.—Crystalline in acicular prisms or silky needles of a fawn colour; it is soluble 1 in 100 parts of cold water, but dissolves in 3 parts of boiling water. Soluble also in rectified spirit 1 in 8, glycerin 1 in 20. It leaves no residue on ignition with free access of air, it gives a bluish-black precipitate with a persalt of iron, but no precipitate with a protosalt of iron or a solution of gelatin, showing the absence of tannic acid.

Actions and Uses.—The same as Tannic Acid.

ACIDUM HYDROCHLORICUM

HYDROCHLORIC ACID

Synonyms.—Muriatic Acid; Spirit of Salt.

Composition.—Water holding in solution 31·8 per cent. of its weight of hydrochloric acid gas, HCl.

Mode of Preparation.—By distilling a mixture of sodium chloride, sulphuric acid, and common water, and allowing the distillate to pass into a receiver containing distilled water.

$$\overset{\substack{\text{Sodium}\\ \text{Chloride.}}}{2NaCl} + \overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{H_2SO_4} = \overset{\substack{\text{Hydrochloric}\\ \text{Acid.}}}{2HCl} + \overset{\substack{\text{Sodium}\\ \text{Sulphate.}}}{2NaSO_4}$$

Sodium sulphate remains in the retort, while hydrochloric acid gas passes over and is absorbed by the water in the receiver.

Characters and Tests.—Colourless, strongly acid liquid, which emits white vapours and has a pungent odour. Sp. gr. 1·16. With silver nitrate it gives a white curdy precipitate (silver chloride), which is soluble in ammonia but insoluble in boiling nitric acid. Should entirely evaporate on the application of heat, and, after being diluted with four times its volume of distilled water, should give no precipitate with hydrosulphuric acid or barium chloride, proving the absence of lead, copper, and sulphuric acid; neither should a strip of polished copper tarnish when boiled with the acid thus diluted, showing the absence of arsenic and antimony.

Actions and Uses.—*Internally*:—In excessive doses irritant poison; in medicinal doses, tonic. Said to act as a lithonlytic on earthy phosphates and carbonates; probably it possesses this property only when injected into the bladder. If employed for this purpose, it must be highly diluted. See Acidum Hydrochloricum dilutum. *Externally*:—Caustic, astringent, antiseptic.

Doses.—For internal use, Acidum Hydrochloricum dilutum is employed.

Modes of Application.—For external use the part is painted with the acid.

Antidotes.—Carbonate of lime (chalk or whiting); magnesia; carbonate of magnesia; demulcent drinks; large draughts of water.

Preparation.—Acidum Hydrochloricum dilutum.

ACIDUM HYDROCHLORICUM DILUTUM

DILUTE HYDROCHLORIC ACID

Composition.—Six fluid ounces of this preparation consist of water holding in solution 36·5 grains (one molecular weight) of hydrochloric acid gas, HCl.

Mode of Preparation.—Take of—

Hydrochloric Acid	8 fluid ounces.
Distilled Water	A sufficiency.

Mix the hydrochloric acid with sixteen fluid ounces of the distilled water, and add more water, so that at 60° F. the mixture shall measure twenty-six and a half fluid ounces.

Characters and Tests.—Sp. gr. 1·052. For tests, see Acidum Hydrochloricum.

Actions and Uses.—Tonic and lithonlytic internally.

Doses.—HORSE, 1 to 4 fluid drachms.—CATTLE, 1 to 4 fluid drachms.—SHEEP, 10 to 20 minims.—PIG, 10 to 20 minims.—DOG, 2 to 10 minims.

Modes of Application.—Diluted with about a hundred times its bulk of water, or combined with infusions of vegetable tonics. As a lithonlytic, see Acidum Hydrochloricum.

Incompatibles.—Carbonates; sulphides; salts of silver.

Antidotes.—Same as to Acidum Hydrochloricum.

ACIDUM HYDROCYANICUM DILUTUM

DILUTED HYDROCYANIC ACID

Synonym.—Prussic acid.

Composition.—Water containing 2 per cent.* by weight of hydrocyanic acid, HCN or HCy.

Mode of Preparation.—By distilling a mixture of potassium ferrocyanide, sulphuric acid, and water.

$$\overset{\text{Potassium Ferrocyanide.}}{2K_4FeCy_6} + \overset{\text{Sulphuric Acid.}}{6H_2SO_4} = \overset{\text{Hydrocyanic Acid.}}{6HCy} + \overset{\text{Potassium-Hydrogen Sulphate.}}{6KHSO_4} +$$

$$\overset{\text{Potassium-Iron Ferrocyanide (Everitt's Yellow salt).}}{FeK_2FeCy_9}$$

Potassium-hydrogen sulphate and potassium-iron ferrocyanide remain in the retort, hydrocyanic acid accompanied by water passes over into the receiver, into which a quantity of water has been previously placed. By the addition of water the distillate is made of such a strength that 100 grains or 110 minims of it precipitated with silver nitrate shall yield ten grains of silver cyanide.

Characters and Tests.—Colourless liquid, with a peculiar odour.† Sp. gr. 0·997. With potassium hydrate and a mixture of ferrous and ferric sulphates it yields, after being acidulated with hydrochloric acid, a precipitate of Prussian blue. Silver nitrate furnishes a white curdy precipitate of silver cyanide which is soluble in ammonia and in boiling nitric acid. Barium chloride should give no precipitate, proving the absence of sulphuric acid and sulphates.

---

* Scheele's Prussic acid, as met with in the shops, is a preparation of uncertain strength, the amount of real hydrocyanic acid contained in it varying from one to four per cent.

† This character should be very cautiously observed, as the vapour of the acid, when inhaled, is highly dangerous.

Actions and Uses.—*Internally*:—In excessive doses, narcotic poison; in medicinal doses, sedative, antispasmodic, and anodyne. Used in chronic cough, chorea, epilepsy, chronic vomiting, carditis, palpitation of the heart, rheumatism, and tetanus.

Doses.—Horse, 20 to 30 minims.—Cattle, 20 to 30 minims.—Sheep, 5 to 10 minims.—Pig, 5 to 10 minims.—Dog, 1 to 3 minims.

To prevent accidents, the smaller doses should be given at first, and afterwards gradually increased.

Modes of Application.—*Internally*:—Diluted with water. In troublesome cough in horses, twenty minims of the acid with a drachm each of camphor and extract of belladonna, made into a ball with powdered liquorice or linseed meal, and given two or three times a day. To the dog, in obstinate vomiting, two grains of the acid with ten grains of carbonate of soda and one ounce of water may be administered every hour. One drachm of the acid with about a quart of water, employed slowly as an enema two or three times a day, lessens muscular contractions in tetanus. *Externally*:—To allay pain and irritation in chronic skin affections, especially in dogs, two to three drachms of the acid are mixed with a pint of distilled or rain water.

Incompatibles.—Nitrate of silver; sulphates and chlorides of iron with an alkali.

Antidotes.—Fresh air; affusions of cold water; inhalation of ammonia or chlorine; freshly precipitated hydrated peroxide of iron mixed with an alkaline carbonate.

ACIDUM NITRICUM

NITRIC ACID

Synonym.—Aqua fortis.

Composition.—Water containing 70 per cent. of nitric hydrate, HNO_3.

Mode of Preparation.—By distilling a mixture of potassium (or sodium) nitrate and concentrated sulphuric acid; potassium-hydrogen sulphate remains in the retort, and nitric acid distils over.

$$\overset{\text{Potassium Nitrate.}}{KNO_3} + \overset{\text{Sulphuric Acid.}}{H_2SO_4} = \overset{\text{Nitric Acid.}}{HNO_3} + \overset{\text{Potassium-Hydrogen Sulphate.}}{KHSO_4}$$

Characters and Tests.—Colourless liquids. Sp. gr. 1·42; boiling-point 250° F. Exposed to air, it emits acrid and corrosive fumes. Copper dropped into a mixture of equal parts of the acid and water causes the evolution of a colourless gas (nitric oxide), which, as it mixes with the oxygen of the air, forms ruddy fumes (nitrous anhydride, N_2O_3, and nitric peroxide, NO_2). A crystal of ferrous sulphate dropped into the acid, diluted with an equal bulk of water, becomes surrounded by a brown cloud if the mixture be cold. The acid should leave no residue on evaporation. Diluted with six times its volume of distilled water, it should give no precipitate with barium nitrate or silver nitrate, showing the absence of sulphuric and hydrochloric acids.

Actions and Uses.—*Internally*:—In excessive doses irritant poison; in medicinal doses, astringent and tonic. *Externally*:—Deodoriser and disinfectant; also used as a caustic for removing warts and fungous growths, and in canker; for improving the condition and destroying the fœtor of unhealthy wounds, caries, foul, and foot-rot.

Doses.—See Acidum Nitricum dilutum, the preparation of nitric acid for internal use.

Modes of Application.—*Internally*, see Acidum Nitricum dilutum. *Externally*:—As a caustic, by means of a pledget of tow tied to a stick, or tow saturated with the acid laid on the part. As an excitant and deodoriser to indolent and sphacelated wounds and ulcers, a mixture of two to four drachms of the acid and one pint of water may be employed. Tow thoroughly saturated with a mixture of four parts of tar and one part of nitric acid is applied to the feet of horses affected with canker.

Antidotes.—Copious draughts of water; demulcent drinks; albumen; milk; soap; alkaline carbonates or bicarbonates; carbonate of lime (chalk or whiting); magnesia; carbonate of magnesia.

Preparation.—Acidum Nitricum dilutum.

ACIDUM NITRICUM DILUTUM

DILUTED NITRIC ACID

Composition.—Water containing 17·44 per cent. of nitric hydrate, HNO_3.

Mode of Preparation.—Take of—

Nitric Acid	6 fluid ounces.
Distilled Water	A sufficiency.

Dilute the acid with twenty-four ounces of the water, then add more water, so that at 60° F. the mixture shall measure thirty-one fluid ounces.

Tests.—Colourless, sour. Sp. gr. 1·101.

Actions and Uses.—*Internally:*—Tonic, astringent; during convalescence from debilitating disorders, in chronic skin diseases, and in chronic enlargement of the liver in cattle.

Doses.—HORSE, 1 to 3 fluid drachms.—CATTLE, 2 to 4 fluid drachms.—SHEEP, 10 to 20 minims.—PIG, 10 to 20 minims.—DOG, 2 to 10 minims.

Mode of Application.—Diluted with from fifty to a hundred times its bulk of water.

Incompatibles.—Alkalies, earths, and other oxides: carbonates; bicarbonates; sulphides; sulphate of iron; and acetate of lead.

Antidotes.—See Acidum nitricum.

ACIDUM NITRO-HYDROCHLORICUM DILUTUM

DILUTED NITRO-HYDROCHLORIC ACID

Synonym.—Diluted Aqua Regia.

Composition.—An aqueous solution of chlorine, chloro-nitric and chloro-nitrous gases.

Mode of Preparation.—Take of—

Nitric Acid	3 fluid ounces.
Hydrochloric Acid . . .	4 fluid ounces.
Distilled Water	25 fluid ounces.

Mix the acids and allow them to remain for twenty-four hours in a bottle, the mouth of which is partially closed; then add the water in successive portions, shake the bottle after each addition, and preserve the mixture in a stoppered bottle.

On mixing the acids they gradually suffer mutual decomposition.

$$\begin{array}{lccccccccc}
 & \text{Nitric Acid.} & & \text{Hydrochloric Acid.} & & \text{Chlorine.} & & \text{Chloro-nitrous Gas.} & & \text{Water.} \\
1. & 2HNO_3 & + & 6HCl & = & Cl_2 & + & 2NOCl_2 & + & 4H_2O \\
 & \text{Nitric Acid.} & & \text{Hydrochloric Acid.} & & \text{Chlorine.} & & \text{Chloro-nitric Gas.} & & \text{Water.} \\
2. & HNO_3 & + & 3HCl & = & Cl_2 & + & NOCl & + & 2H_2O
\end{array}$$

Characters and Tests.—Colourless liquid. Sp. gr. 1·074. Dissolves gold leaf.

Actions and Uses.—*Internally* :—In excessive doses irritant poison; in medicinal doses, alterative and tonic. For the latter purposes it is preferred to either nitric or hydrochloric acid separately.

Doses.—Horse, 1 to 3 fluid drachms.—Cattle, 2 to 4 fluid drachms.—Sheep, 10 to 20 minims.—Pig, 10 to 20 minims.—Dog, 2 to 10 minims.

Mode of Application.—Diluted with not less than a hundred times its bulk of water.

Incompatibles. }
Antidotes. } Same as Acidum Nitricum dilutum.

ACIDUM SULPHURICUM

SULPHURIC ACID

Synonym.—Oil of Vitriol.

Composition.—96·8 per cent. by weight of sulphuric hydrate, H_2SO_4, with 3·2 per cent. of water.

Mode of Preparation.—Sulphurous anhydride, vapour of nitric acid, steam, and air are conducted into a leaden chamber, where they react upon one another in the following manner:—

$$\overset{\substack{\text{Sulphurous}\\\text{Anhydride.}}}{3SO_2} + \overset{\substack{\text{Nitric}\\\text{Acid.}}}{2HNO_3} + \overset{\text{Water.}}{2H_2O} = \overset{\substack{\text{Sulphuric}\\\text{Acid.}}}{3H_2SO_4} + \overset{\substack{\text{Nitric}\\\text{Oxide.}}}{2NO}$$

The resulting nitric oxide abstracts oxygen from the air, and becomes nitric peroxide:—

$$\overset{\substack{\text{Nitric}\\\text{Oxide.}}}{NO} + \overset{\text{Oxygen.}}{O} = \overset{\substack{\text{Nitric}\\\text{Peroxide.}}}{NO_2}$$

The nitric peroxide thus formed oxidizes further quantities of sulphurous anhydride, and, with the assistance of steam, converts it into sulphuric acid:—

$$\overset{\substack{\text{Sulphurous}\\\text{Anhydride.}}}{SO_2} + \overset{\substack{\text{Nitric}\\\text{Peroxide.}}}{NO_2} + \overset{\text{Water.}}{H_2O} = \overset{\substack{\text{Sulphuric}\\\text{Acid.}}}{H_2SO_4} + \overset{\substack{\text{Nitric}\\\text{Oxide.}}}{NO}$$

The acid produced in the leaden chambers is very dilute; it is concentrated by evaporation, first in leaden basins, and finally in glass or platinum retorts.

Characters and Tests.—Colourless, heavy, oily, intensely acid liquid. Sp. gr. 1·843. Mixed with water, much heat is evolved. Diluted with five or six times its volume of water, it gives, with barium chloride, a white precipitate (barium sulphate), which is insoluble in nitric acid; it should yield no precipitate or darkening of colour with hydrosulphuric acid, indicating the absence of lead. When a solution of ferrous sulphate is carefully poured upon the surface of the acid, there should be no brown colour developed where the two liquids unite, showing the absence of nitric acid and oxides of nitrogen. The acid should leave no residue on evaporation.

Actions and Uses.—*Internally*:—Irritant and corrosive poison; see Acidum Sulphuricum dilutum. *Externally*:—Employed as a caustic for the removal of warts and cancerous growths.

Mode of Application.—Made into a paste with flowers of sulphur, sawdust, finely powdered charcoal, or dried alum.

Antidotes.—Same as for Acidum Nitricum.

ACIDUM SULPHURICUM DILUTUM

DILUTED SULPHURIC ACID

Composition.—Water containing 12·42 per cent. of sulphuric hydrate, H_2SO_4.

Mode of Preparation.—Take of—

Sulphuric Acid	7 fluid ounces.
Distilled Water	A sufficiency.

Place seventy-seven fluid ounces of distilled water into a thin glass or earthenware vessel, and then pour into it the seven fluid ounces of acid. Stir the mixture, and, when cooled to 60° F., add more water, so that it shall measure eighty-three and a half fluid ounces.

Characters and Tests.—Colourless, sour liquid. Sp. gr. 1·094.

Actions and Uses.—*Internally:*—In excessive doses, irritant poison; in medicinal doses, astringent; also tonic during convalescence, and in other cases in which mineral tonics are indicated. *Externally:*—Astringent.

Doses.—HORSE, 2 to 4 fluid drachms.—CATTLE, 2 to 4 fluid drachms.—SHEEP, 10 to 20 minims.—PIG, 10 to 20 minims.—DOG, 2 to 10 minims.

Modes of Application.—*Internally:*—As a tonic, it is given diluted with from fifty to a hundred times its bulk of water. In diarrhœa and dysentery, accompanied by alkaline discharges, two fluid drachms of acid, with one fluid ounce of laudanum, may be administered twice a day in gruel or some mucilaginous drink. One fluid drachm of this acid, with one ounce each of sulphuric ether and powdered cinchona bark, are sometimes given in gruel or ale to horses suffering from typhoid influenza. In cases of relaxed and ulcerated sore throat in horses, the acid, highly diluted with water, may be slowly given.

Externally:—As an astringent, thirty minims of acid in one fluid ounce of water.

Incompatibles.
Antidotes. } Same as Acidum Nitricum.

ACIDUM SULPHUROSUM

SULPHUROUS ACID

Composition.—Water containing 9·2 per cent. by weight of sulphurous anhydride (sulphurous acid gas), SO_2.*

Mode of Preparation.†—Take of—

Sulphuric Acid	4 fluid ounces.
Wood Charcoal, in coarse powder .	1 ounce.
Common Water	2 fluid ounces.
Distilled Water	20 fluid ounces.

Put the charcoal and sulphuric acid into a glass flask, connected by a glass tube with a wash-bottle containing the two fluid ounces of common water, whence a second tube leads into a pint bottle containing the distilled water, to the bottom of which the gas-delivery tube should pass. Apply heat to the flask until gas is evolved, which is to be conducted through the water in the wash-bottle, and then into the distilled water, the latter being kept cold, and the process being continued until the bubbles of gas pass through the liquid undiminished in size.

Sulphuric Acid.		Carbon.		Sulphurous Anhydride.		Carbonic Oxide.		Water.
H_2SO_4	$+$	C	$=$	SO_2	$+$	CO	$+$	H_2O

The product should be preserved in a stoppered bottle, to prevent the conversion of the sulphurous anhydride, by absorption of oxygen, into sulphuric acid; thus:—

Sulphurous Anhydride.		Water.		Oxygen from air.		Sulphuric Acid.
SO_2	$+$	H_2O	$+$	O	$=$	H_2SO_4

It should be kept in a cool place, to prevent loss of gas.

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* Equal to 11·78 per cent. of hypothetical sulphurous acid, H_2SO_3.

† For fumigating or disinfecting purposes, sulphurous anhydride may be easily evolved by setting fire to a few fragments of roll sulphur (brimstone) placed in a saucer or other suitable vessel.

Sulphur.		Oxygen from air.		Sulphurous Anhydride.
S	$+$	O_2	$=$	SO_2

Characters and Tests.—A colourless liquid, with an odour like that emitted from burning sulphur. Sp. gr. 1·04. Should leave no residue on evaporation, and should give no precipitate, or but a very slight one, with barium chloride, showing the absence, or nearly so, of sulphuric acid.

Actions and Uses.—Antiseptic, deodorizer, disinfectant.* Applied externally to kill fungi that cause or accompany certain skin affections.

Mode of Application.—One part of the acid mixed with three parts of water, or two of glycerin, applied to the diseased surface with a sponge.

ACIDUM TANNICUM

TANNIC ACID

Synonym.—Tannin.

Composition.—Pure tannic acid has the formula $H_3C_{27}H_{19}O_{17}$, but that obtained by the method described below, and taken from the' 'British Pharmacopœia of 1867,' is mixed with gallic acid, $HC_7H_8O_5$.†

Mode of Preparation.—Take of—

Oak Galls in powder . . .	Of each a sufficiency.
Ether	

Expose the powdered galls to a damp atmosphere for two or three days, and afterwards add sufficient ether to form a soft paste. Let this stand in a well-closed vessel for twenty-four hours, then, having quickly enveloped it in a linen cloth, submit it to a strong pressure in a suitable press so as to separate the liquid portion. Reduce the pressed cake to powder, mix it with sufficient ether, to which one sixteenth of its bulk of water has been added, to form again a soft paste, and press this as before. Mix the expressed liquids, and expose the mixture to a spontaneous evaporation until, by the aid subsequently of a little heat, it has acquired the consistence of a soft extract; then place it on earthen plates or dishes, and dry it in a hot-air chamber at a temperature not exceeding 212° F.

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* The author has invented a new disinfectant, "Sporokton," the active principles of which are sulphurous acid and chloride of zinc. See Zinci Chloridum.

† By some practitioners gallic acid is regarded as being a more effective astringent and styptic than tannic acid, and is prescribed in cases where hæmorrhage has to be reached through the circulation. The doses are the same as those of tannic acid.

Under the combined influence of moisture and atmospheric oxygen tannic acid is converted into gallic acid. Two views are entertained respecting this change:—

$$\text{1st view, } \overset{\text{Tannic Acid.}}{H_3C_{27}H_{19}O_{17}} + \overset{\text{Oxygen.}}{O_{12}} = \overset{\text{Gallic Acid.}}{3HC_7H_5O_5} + \overset{\text{Water.}}{2H_2O} + \overset{\text{Carbonic Anhydride.}}{6CO_2}$$

$$\text{2nd view, } \overset{\text{Tannic Acid.}}{H_3C_{27}H_{19}O_{17}} + \overset{\text{Water.}}{5H_2O} = \overset{\text{Gallic Acid.}}{3HC_7H_5O_5} + \overset{\text{Glucose.}}{C_6H_{12}O_6.Aq.}$$

Characters and Tests.—Pale yellow vesicular masses or thin glistening scales, strongly astringent taste, and acid reaction. Readily soluble in water, 10 in 8 parts, and rectified spirit, sparingly soluble in ether. With an aqueous solution gelatin gives a yellowish-white precipitate (gelatin tannate), and ferric chloride furnishes a bluish-black precipitate (ferric tannate). The acid should leave no residue when burned with free access of air.

Actions and Uses.—*Internally and Externally:*—Astringent and styptic. Employed to diminish mucous discharges, as in diarrhœa and dysentery; also used as a vermicide. Antidote to tartar emetic; also to strychnia, morphia, and other alkaloidal poisons. Tannic acid is an ingredient of styptic collodion.

Doses.—Horse, 20 to 60 grains.—Cattle, 20 to 60 grains.—Sheep, 4 to 12 grains.—Pig, 4 to 12 grains.—Dog, 1 to 3 grains.

Modes of Application.—*Internally*:—Either in the form of bolus, pill, or solution in water or spirit of wine. *Externally*:—One part of acid dissolved in six parts water, or Unguentum Acidi Tannici.

Incompatibles.—Mineral acids; alkalies; salts of lead; silver; iron; antimony; alkaloids; gelatin, and emulsions.

Preparations.—Glycerinum Acidi Tannici; Unguentum Acidi Tannici.

ACONITI FOLIA

ACONITE LEAVES

The fresh leaves and flowering tops of *Aconitum napellus* (Monkshood, Wolfsbane, Blue Rocket), gathered when about one third of the flowers are expanded, from plants cultivated in Britain.

Natural Order.—*Ranunculaceæ.*

Characters.—Leaves smooth, palmate, divided into five deeply-cut wedge-shaped segments, which are further incised in a pinnatifid manner, dark green above, paler beneath; slowly exciting, when *cautiously* chewed, a sensation of tingling. Flowers numerous, irregular, deep blue in dense racimes.

Actions and Uses.—*Internally*:—In excessive doses, cerebro-spinal poison; in medicinal doses, sedative and anodyne. *Externally*:—Occasionally applied to allay neuralgic and rheumatic pains; for this purpose, however, Linimentum Aconiti or Tinctura Aconiti is usually preferred.

Antidotes. — Emetics, when they can be employed; stimulants, internally and externally.

Preparations.—Extractum Aconiti; Linimentum Aconiti; Tinctura Aconiti.

ACONITI RADIX

ACONITE ROOT

The dried root of *Aconitum napellus.* Imported from Germany or cultivated in Britain, and collected in the winter or early spring, before the leaves have appeared.

Natural Order.—*Ranunculaceæ.*

Characters.—Usually from one to three inches long, not more than about three quarters of an inch in thickness at the crown, tapering; externally, blackish-brown; internally, whitish; earthy odour. A minute portion *cautiously* chewed causes prolonged tingling and numbness.

Antidotes.—See Aconiti Folia.

Preparations. — Aconitia; Linimentum Aconiti; and Tinctura Aconiti.

ACONITIA

ACONITIA

Synonyms.—Aconitina; Aconitine.

A highly poisonous alkaloid, $C_{30}H_{47}O_7N$, residing in, and forming the active principle of, the root, leaves, and other parts of several species of aconite. Not used in veterinary practice, as it is very costly.

ADEPS PRÆPARATUS

PREPARED LARD

Obtained from *Sus scrofa.*

Natural Order.—*Pachydermata.*

Synonyms.—Axungia; Hog's Lard.

Composition.—A mixture of 38 per cent. of margarin and stearin and palmitin, with 62 per cent. of olein.

Preparation.—The fat of the hog (*Sus scrofa*), taken from the loins, omentum, and mesentery, is deprived of its membranes and purified by being kneaded with cold water, melted, strained, dried at a little above 212° F., again strained through flannel, and finally run into bladders or casks and allowed to solidify.

Characters and Tests.—Soft, white, fatty substance, melting at about 100° F. Should not have a rancid odour, and should dissolve entirely in ether. If boiled with distilled water and filtered, the filtrate should give no precipitate with silver nitrate, showing the absence of common salt; and, when quite cold, no blue colour with solution of iodine, proving the absence of starch and flour.

Actions and Uses.—Chiefly employed externally as a simple dressing to ulcers and blistered surfaces, which it softens and protects from the irritating action of the atmosphere and of acrid discharges. Occasionally to kill the acarus in mange, scab, and similar complaints. Extensively used in the preparation of ointments.

ÆTHER

ETHER

Synonyms.—Ethylic Oxide; Ethylic Ether; Sulphuric Ether.

Composition. — About 92 per cent. of pure ether $(C_2H_5)_2O$ or $C_4H_{10}O$, with about 8 per cent. of impurities, chiefly water and alcohol.

Preparation.—Take of—

Rectified Spirit	50 fluid ouncés.
Sulphuric Acid	10 fluid ounces.

Chloride of Calcium . . .	10 ounces.
Slaked Lime	½ ounce.
Distilled Water	13 fluid ounces.

Mix the sulphuric acid with twelve fluid ounces of the spirit in a glass retort capable of holding at least two pints; connect the retort with a Liebig's condenser to which a receiver has been attached, and distil with a heat sufficient to maintain the liquid in brisk ebullition. Allow the remainder of the spirit to slowly flow in a continuous stream into the retort. For this purpose use a tube, furnished with a stopcock to regulate the supply, connecting one end of the tube with a vessel containing the spirit raised above the level of the retort, and passing the other end through a cork fitted into the neck of the retort. When the whole of the spirit has been added, and forty-two fluid ounces of impure ether have distilled over, the process may be stopped.

Dissolve the chloride of calcium in the distilled water, add the lime, and agitate the mixture in a bottle with the impure ether; the chloride of calcium absorbs water, and the lime sulphurous acid. Leave the mixture at rest for ten minutes, pour off the light supernatant fluid, and distil it with a gentle heat until a glass bead of sp. gr. 0·735 placed in the receiver begins to float. The product is ether of the composition already stated.

In the foregoing process the decomposition takes place in two stages:—

$$1.\ \overset{\text{Alcohol.}}{HC_2H_5O} + \overset{\substack{\text{Sulphuric}\\\text{Acid.}}}{H_2SO_4} = \overset{\substack{\text{Sulphethylic}\\\text{Acid.}}}{C_2H_5HSO_4} + \overset{\text{Water.}}{H_2O}$$

$$2.\ \overset{\text{Alcohol.}}{HC_2H_5O} + \overset{\substack{\text{Sulphethylic}\\\text{Acid.}}}{C_2H_5HSO_4} = \overset{\text{Ether.}}{(C_2H_5)_2O} + \overset{\substack{\text{Sulphuric}\\\text{Acid.}}}{H_2SO_4}$$

The ether distils over, and the sulphuric acid remains in the retort.

Characters and Tests.—Colourless, very volatile, and inflammable liquid, emitting a strong and characteristic odour, and boiling below 105° F. Sp. gr. 0·735. Fifty measures shaken with an equal volume of water are reduced to forty-five, by an absorption of 10 per cent. It should evaporate without residue.

Actions and Uses.—*Internally*:—Stimulant, narcotic, and antispasmodic.—*Externally* :—Refrigerant. Inhaled, it acts as an anæsthetic. Used also in the production of local anæsthesia.

Doses.—HORSE, 1 to 2 fluid ounces.—CATTLE, 2 to 3 fluid ounces.—SHEEP, 2 to 4 fluid drachms.—PIG, 2 to 4 fluid drachms.—DOG, ½ to 2 fluid drachms.

Modes of Application.—As a stimulant and antispasmodic, it is given with cold water; as a refrigerant, it is applied to the part either alone or mixed with a cooling lotion; as a general anæsthetic, a sponge saturated with it is placed in the bottom of a nose-bag attached to the patient's head, and perforated so as to ensure the ether vapour being mixed with air. For the production of local anæsthesia, Dr Richardson's spray-diffuser must be employed.

Preparations.—Collodium; Collodium Flexile; Spiritus Ætheris.

ALBUMEN OVI

EGG ALBUMEN

Liquid white of the egg of the *Gallus Banckira*, var. domesticus.

Natural Order.—*Gallinæ*.

Composition.—Consists of carbon, hydrogen, oxygen, nitrogen, sulphur, and phosphorus, but the molecular weight has not yet been determined.

Actions and Uses.—As an antidote to corrosive poisons.*

Doses.—Ad libitum.

Modes of Application.—Before administration it should be whisked, either alone or with water or demulcent drinks.

ALOE BARBADENSIS

BARBADOES ALOES

The inspissated juice of the leaf of *Aloe vulgaris*, belonging to natural order *Liliaceæ*. Imported from Barbadoes, usually in gourds.

Composition.—Aloin, $C_{17}H_{18}O_7$, mixed with resin and other impurities.

Characters.—Yellowish-brown or dark brown opaque masses; breaks with a dull conchoidal fracture; bitter nauseous taste, and a strong disagreeable odour; dissolves almost entirely in proof spirit, and during solution exhibits under the microscope numerous crystals.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses, purgative, nauseant, tonic, diuretic, vermifuge. *Externally*:—Traumatic.

Doses.—*Purgative.*—HORSE, 2 to 8 drachms.—CATTLE, 1 to 2 ounces.—SHEEP, ½ to 1 ounce.—PIG, 1 to 4 drachms.—DOG, 20 grains to 2 drachms.

Modes of Application.—*Internally*:—Massa Aloes, Liquor Aloes, and Liquor Aloes cum Sodæ Carbonas. *Externally*:—As a traumatic, the powder is sprinkled over wounds; Tinctura Aloes Composita.

Preparations.—Liquor Aloes; Liquor Aloes cum Sodæ Carbonas; Massa Aloes; Tinctura Aloes composita.

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* Serum from blood, emulsions of bean or pea meal, or milk, may be used in the absence of egg albumen.

ALOE CAPENSIS

CAPE ALOES*

The inspissated juice of the leaf of *Aloe spicata* and several other allied species belonging to natural order *Liliaceæ.* Imported from the Cape of Good Hope in skins and in chests.

Composition.—Similar to that of *Aloe Barbadensis.*

Characters.—Glossy, resinous appearance; dark brown colour, with a strong, greenish-yellow shade, especially when in small fragments; strong, disagreeable odour, increased by breathing on it; acrid, bitter taste; very brittle and readily reduced to powder, which has a shining, greenish-yellow colour.

Actions and Uses.
Doses.
Modes of Application. } Similar to those of Aloe Barbadensis.

ALOE SOCOTRINA

SOCOTRINE ALOES

The inspissated juice of the leaf of one or more undetermined species of Aloe, probably from Aloe socotrina and Aloe purpurascens, belonging to the natural order *Liliaceæ.* Imported from the island of Socotra, also from Zanzibar. It comes over in skins, casks, kegs, and chests.

Composition.—Similar to Aloe Barbadensis.

Characters.—Occurs in masses, varying in colour in different parts of the same mass, sometimes garnet red, at others much paler, and when quite dry golden red, yielding a golden-yellow powder. The colour is deepened by exposure to air; fine pieces break with a smooth, glassy, conchoidal fracture, but specimens of good quality often break with a roughish fracture. The taste is very bitter, and the odour of fresh-broken pieces (especially when breathed on) is very fragrant; it dissolves entirely in proof spirit, and during solution exhibits under the microscope numerous minute crystals.

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* Barbadoes aloes is usually preferred to this preparation, as it is considered by most veterinary practitioners to be more certain in its therapeutic action.

Actions and Uses. **Doses.** **Modes of Application.**	Similar to those of Aloe Barbadensis.

ALOIN

ALOIN

Synonym.—Aloine.

Composition.—$C_{17}H_{18}O_7$.

This is the principal constituent of aloes, of which it forms about 60 per cent. It is contained in the cold infusion of aloes, and also in a decoction which has cooled; it may be obtained from either by evaporation. Thus procured it is a brown bitter mass, readily soluble in water but difficultly so in alcohol. Its insolubility in ether distinguishes it from the bitter principle of rhubarb.

ALUMEN

ALUM*

Synonyms.—Potassium-aluminum Sulphate; Potassium Alum.

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* In the last 'British Pharmacopœia' ammonium alum, $NH_4Al2SO_4.12Aq.$ is substituted for potassium alum. When solution of ammonium alum is mixed with potassium hydrate, ammoniacal gas is evolved and aluminum hydrate is precipitated, which dissolves in excess of the alkali.

Composition.—$KAl2SO_4.12Aq$, or $K_2SO_4.Al_23SO_4.24Aq$.

Mode of Preparation.—There are various modes, but the following is the simplest :—Cornish or pipe-clay is boiled with sulphuric acid, so as to form aluminum sulphate and silica.

$$\overset{\substack{\text{Clay}\\\text{(Aluminum}\\\text{Silicate).}}}{Al_2\ (SiO_3)_3} + \overset{\substack{\text{Sulphuric}\\\text{Acid.}}}{3H_2SO_4} = \overset{\substack{\text{Aluminum}\\\text{Sulphate.}}}{Al_2(SO_4)_3} + \overset{\substack{\text{Silica}\\\text{(Silicic}\\\text{Anhydride).}}}{3SiO_2} + \overset{\text{Water.}}{3H_2O}$$

The aluminum sulphate, after being separated from the silica, is mixed with solution of potassium sulphate; the two salts unite, and on evaporation crystallize out as alum :—

$$Al_2(SO_4)_3 + K_2SO_4 + 24H_2O = 2\ [AlK\ (SO_4)_2.\ 12\ Aq.].$$

Characters and Tests.—Colourless, transparent, crystalline masses, exhibiting the faces of the regular octohedron, and having an astringent taste.

Its aqueous solution gives a white gelatinous precipitate (aluminum hydrate) with potassium hydrate soluble in excess of this reagent, indicating the presence of aluminum. A platinum wire moistened with the solution, held in the reducing flame of the blowpipe, communicates a violet colour to the flame, showing the presence of potassium. Barium chloride added to the aqueous solution gives a white precipitate (barium sulphate), insoluble in nitric acid, proving that the compound is a sulphate. Potassium ferrocyanide should not produce either a pale or dark blue colour, showing the absence of iron.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses, astringent in diarrhœa, dysentery, and obstinate diabetes; as an antidote to poisoning by lead, and to arrest the secretion of milk in cows. *Externally*:—Astringent to open joints and wounded thecæ; as a collyrium in chronic conjunctivitis; also styptic.

Doses.—HORSE, 2 to 4 drachms.—CATTLE, 2 to 4 drachms.—SHEEP, ½ to 2 drachms.—PIG, ½ to 2 drachms. —DOG, 10 to 30 grains.

Modes of Application.—*Internally* :—Dissolved in water, or in the form of bolus, either alone or in conjunction with opium and carminatives. *Externally*:—Pulvis Aluminis compositus sprinkled over the wound; otherwise apply Liquor Aluminis, or Unguentum Aluminis compositus, or in cases of open joints, one part of finely powdered alum with two or three parts of flour may be dusted over the opening.

Incompatibles.—Tannic acid and vegetable astringents containing it; alkalies, earths, and their carbonates; acetate of lead.

Preparations.—Alumen Exsiccatum; Liquor Aluminis compositus; Unguentum Aluminis; Unguentum Aluminis compositus.

ALUMEN EXSICCATUM

DRIED ALUM

Synonym.—Burned alum.

Composition.—Alum deprived of its water of crystallization by heat.

Mode of Preparation.—Heat alum in a porcelain dish till aqueous vapour ceases to be given off, taking care that temperature never exceeds 400° F. Pulverize the residue and preserve in a well-stoppered bottle.

Actions and Uses.—Caustic and astringent; employed externally for the same purposes as alum, than which it is more powerful.

Preparation.—Pulvis Aluminis compositus.

AMMONIACUM

AMMONIACUM

Synonym.—Gum Ammoniacum.

Composition.—$C_{40}H_{50}O_9$.

A gum-resinous exudation from *Dorema ammoniacum*, belonging to natural order *Umbelliferæ.* Collected in Persia and Punjaub.

Characters.—In tears or masses; the tears from one fifth to four fifths of an inch in diameter, pale cinnamon-brown, breaking with a smooth, shining, opaque, white surface; the masses composed of agglutinated tears, hard and brittle when cold, but readily softening with heat. Faint odour, and a bitter, acrid, nauseous taste. Rubbed with water, it forms a nearly white emulsion.

Actions and Uses.—*Internally:*—Stimulant and anti-spasmodic in coughs, spasmodic nervous diseases, *e.g.* chorea, epilepsy, &c.; also vermifuge.

Doses.—Horse, 2 to 4 drachms.—Cattle, 2 to 4 drachms.—Sheep, ½ to 1½ drachm.—Pig, ½ to 1½ drachm.—Dog, 10 to 20 grains.

Modes of Application.—Administered in the form of bolus or emulsion. As a vermifuge it may be given either by the mouth or the rectum.

AMMONIÆ CARBONAS

CARBONATE OF AMMONIA

Synonym.—Sesquicarbonate of Ammonia.

Composition.—Probably $2NH_4HCO_3 + NH_4NH_2CO_2$, *i.e.* a mixture or compound of two molecules of ammonium-hydrogen carbonate and one molecule of ammonium carbonate.

Preparation.—By heating to redness a mixture of one part of ammonium chloride and two parts of calcium carbonate (chalk), in an iron or earthenware retort, to which is luted an earthenware or leaden receiver. When the receiver has become filled with the "carbonate of ammonia" by repeated distillations, it is broken or cut in two, and its contents removed.

$$\overset{\substack{\text{Ammonium}\\\text{Chloride.}}}{6NH_4Cl} + \overset{\substack{\text{Calcium}\\\text{Carbonate.}}}{3CaCO_3} = \overbrace{[\overset{\substack{\text{Ammonium-}\\\text{Hydrogen}\\\text{Carbonate.}}}{2NH_4HCO_3} + \overset{\substack{\text{Ammonium}\\\text{Carbamate.}}}{NH_4NH_2CO_2}]}^{\text{"Carbonate of Ammonia."}}$$

$$+ \overset{\substack{\text{Ammoniacal}\\\text{Gas.}}}{2NH_3} + \overset{\substack{\text{Calcium}\\\text{Chloride.}}}{3CaCl_2} + \overset{\text{Water.}}{H_2O}$$

The ammoniacal gas and water are first disengaged, then the "carbonate of ammonia" distils over, and the calcium chloride remains in the retort.

Characters and Tests.—Translucent crystalline masses, with a strong ammoniacal odour* and alkaline reaction; soluble in cold water,† sparingly so in spirit of wine. Volatilized entirely by heat, and dissolved by acids with effervescence. If dissolved in slight excess of dilute nitric

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* The odour is due to the escape of ammoniacal gas. By exposure to air the preparation also loses carbonic anhydride and becomes ammonium-hydrogen carbonate, which is opaque, odourless, and antacid, but not stimulant; hence, "carbonate of ammonia" should be preserved in well-stoppered bottles.

† When commercial or pharmaceutical "carbonate of ammonium" is dissolved in water, the ammonium carbamate which it contains is soon transformed into normal ammonium carbonate; thus:

$$\overset{\substack{\text{Ammonium}\\\text{Carbamate.}}}{NH_4(NH_2CO_2)} + \overset{\text{Water.}}{H_2O} = \overset{\substack{\text{Ammonium}\\\text{Carbonate.}}}{(NH_4)_2CO_3}.$$

acid and boiled, the solution should give no white precipitate with silver nitrate, showing the absence of chlorine, and no blue colour with potassium ferrocyanide, proving the absence of iron.

Actions and Uses.—*Internally* :—In excessive doses, irritant and narcotic poison; in medicinal doses, stimulant, antacid and resolvent. Given in influenza, scarlatina, erysipelas, and other typhoid affections; also in inflammation of the lungs, pleurisy, and similar complaints.

Doses.—HORSE, 1 to 2 drachms.—CATTLE, 2 to 4 drachms.—SHEEP, 20 grains to 1 drachm.—PIG, 20 grains to 1 drachm.—DOG, 3 to 10 grains.

Modes of Application.—In a bolus, pill, or in cold gruel.

Incompatibles.—Acids; alkalies; lime-water; and most metallic salts.

Antidotes.—Copious draughts of water or mucilaginous drinks, oil, or highly diluted acids.

Preparations.—Liquor Ammoniæ Acetatis; Spiritus Ammoniæ Aromaticus.

AMMONII CHLORIDUM

CHLORIDE OF AMMONIUM

Synonyms.—Ammonium Chloride; Hydrochlorate of Ammonia; Muriate of Ammonia; Sal Ammoniac.

Composition.—NH_4Cl.

Preparation.—"Gas liquor," which is water holding in solution carbonate and other salts of ammonium, is acidulated with hydrochloric acid and evaporated to dryness. The crude ammonium chloride, constituting the residue, is purified by sublimation.

Characters and Tests.—Colourless, odourless, translucent, fibrous masses, tough and difficult to powder; soluble in water and in rectified spirit. Its aqueous solution, heated with potassium hydrate, evolves ammoniacal gas, which may be recognised by its odour; with silver nitrate it gives a white curdy precipitate (silver chloride), insoluble in boiling nitric acid, soluble in ammonia.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses,* stimulant, resolvent, diuretic. Given in mucous fevers after subsidence of acute inflammatory symptoms; in the milder forms of pneumonia and inflammations of serous membranes; in mucous diarrhœa, chronic rheumatism, and passive dropsies. *Externally*:—Stimulant to bruises, sprains, and inflammatory swellings.

Doses.—HORSE, ½ to 1½ ounce.—CATTLE, ½ to 1½ ounce. —SHEEP, ½ to 2 drachms.—PIG, ½ to 2 drachms.—DOG, 5 to 20 grains.

Modes of Application.—*Internally*:—Bolus, pill, or dissolved in water. *Externally*:—Lotio Ammonii Chloridi cum Camphora; Lotio Ammonii Chloridi cum Potassæ Nitras.

Incompatibles.—Sulphuric and nitric acids; potash, soda, lime, and their carbonates; and most metallic salts.

Antidotes.—Large draughts of water; and, when possible, vomiting should be promoted by warm demulcent and mucilaginous drinks.

Preparations.—Lotio Ammonii Chloridi et Camphora Lotio Ammonii Chloridi et Potassæ Nitras.

* Seldom employed internally in this country, but on the Continent extensively used as a resolvent in inflammatory diseases, it is said, with the greatest advantage.

AMYLUM

STARCH

Synonym.—Fecula.

Composition.—$C_6H_{10}O_5$, or more probably $C_{18}H_{30}O_{15}$.

Mode of Preparation.—Chiefly obtained by grinding wheat or rice, or rasping potatoes, making the product into a pulp with water, and washing it in a sieve. The starch passes through the sieve, subsides, and is collected and dried at a gentle heat.

Characters and Tests.—White columnar masses. Rubbed in a mortar with a little cold water, it should be neither acid nor alkaline to test-paper. Mixed with boiling water and cooled, it gives a deep blue colour (starch iodide), with solution or tincture of iodine.

Actions and Uses.—*Internally:*—Demulcent and emollient, in the form of gruel. *Externally:*—Applied in the state of dry powder, it diminishes the discharge from wounds, and, mixed with about one eighth of its weight of alum, it is employed to arrest the flow of synovia from open joints.

AMYL NITRITI

NITRITE OF AMYL

Synonym.—Amyl Nitris; Amyl Nitrite.

Composition.—$C_5H_{11}NO_2$.

Mode of Preparation.—Take of—

Amyl Alcohol	10 fluid ounces.
Nitric Acid	10 fluid ounces.

This mixture is introduced into a capacious glass retort, having a thermometer inserted through the tubulus, a moderate heat is applied, and very gradually increased. As soon as the mixture approaches boiling the fire is removed and the reaction allowed to continue, care being taken that the thermometer does not rise above 212°.

The distillate obtained is agitated with an aqueous solution of carbonate of potassium to remove free acid, the oily liquid is then separated and redistilled.

Characters and Tests.—Nitrite of amyl is a yellowish ethereal liquid; sp. gr. of liquid 0·877; boiling-point 205° F.; soluble in alcohol, insoluble in water; converted by fused potassium hydrate into valerianate of potassium ($KC_5H_9O_2$).

$$\overset{\text{Amyl Alcohol.}}{C_{10}H_{12}O} + \overset{\text{Nitric Acid.}}{HNO_3} + \overset{\text{Sulphuric Acid.}}{H_2SO_4} + \overset{\text{Copper.}}{Cu} =$$

$$\overset{\text{Nitrite of Amyl.}}{C_5H_{11}NO_2} + \overset{\text{Sulphate of Copper.}}{CuSO_4} + \overset{\text{Water.}}{2H_2O}$$

Actions and Uses.—Sedative, antispasmodic, and anæsthetic. Used in the treatment of tetanus.

Doses.—As an anæsthetic the vapour of 1 to 3 drachms for the HORSE; 10 to 20 minims for the DOG.

ANISI FRUCTUS

ANISE FRUIT

Synonym.—Aniseed.

The fruit of the *Pimpinella anisum*. Cultivated in China, Japan, and Tartary.

Natural Order.—*Umbelliferæ.*

Composition.—The active principle is a volatile oil.*

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* The volatile oil of anise, Oleum Anisi, is commonly added to masses

Characters.—Ovoid; composed of two mericarps with five primary ridges; slightly hairy; yellowish-brown colour, peculiar sweet aromatic odour, and a warm sweetish taste.

Actions and Uses.—Stomachic, carminative, aromatic. Used internally in indigestion and flatulency, to mask the disagreeable flavour of medicines, and to diminish the nauseating and griping effects of purgatives.

Doses.—HORSE, ½ to 2 ounces.—CATTLE, 1 to 2 ounces.—SHEEP, 2 to 3 drachms.—PIG, 2 to 3 drachms.—DOG, 20 grains to 1 drachm.

Modes of Application.—The powdered fruit is administered alone, or in conjunction with ginger or some other aromatic, in ale or in spirit and water.

ANTHEMIDIS FLORES

CHAMOMILE FLOWERS

The dried single and double flower-heads of the common chamomile, *Anthemis nobilis*. Found in a wild state in all the temperate parts of Europe. Cultivated at Mitcham, Derbyshire, and other parts of England.

Natural Order.—*Compositæ*.

Composition.—The active principles are a bitter substance of unknown composition and a volatile oil.

Characters.—The single variety consists of both yellow tubular and white strap-shaped florets, the double of white strap-shaped florets only; all arising from a conical scaly receptacle. Both varieties, but especially the single, are bitter and very aromatic.

Actions and Uses.—*Internally*:—Tonic and carminative

as a flavouring ingredient, and is likewise employed to destroy pediculi on dogs and other small animals.

in indigestion, and during convalescence after inflammatory attacks.

Doses.—HORSE, 2 to 6 drachms.—CATTLE, 2 to 6 drachms.—SHEEP, ½ to 2 drachms.—PIG, ½ to 2 drachms. DOG, 10 to 60 grains.

Mode of Application.—The dried flowers powdered, in combination with ginger or some other aromatic, once or twice a day.

Incompatibles.—Mineral acids and most metallic salts.

ANTIMONII OXIDUM

OXIDE OF ANTIMONY

Synonyms.—Antimonious Oxide; Antimony Trioxide; Teroxide of Antimony.

Composition.—Sb_2O_3.

Mode of Preparation.—Take of—

Solution of Chloride of Antimony . .	16 fluid ounces.
Carbonate of Soda	6 ounces.
Common Water	2 gallons.
Distilled Water	A sufficiency.

Pour the chloride of antimony into the common water, and mix thoroughly; let the precipitate (antimony oxychloride) which forms settle, and, after removing the supernatant liquid by a syphon, add to it one gallon of distilled water, agitate well, let the precipitate subside; again withdraw the fluid and repeat the processes of affusion of distilled water, agitation, and subsidence. Now add the carbonate of soda, previously dissolved in two pints of distilled water; leave them in contact for half an hour, stirring frequently; collect the deposit on a calico filter, and wash it with boiling distilled water until the washings, after being acidulated by nitric acid, cease to give a precipitate with solution of silver nitrate. Dry the product (oxide of antimony) at a temperature not exceeding 212° F.

The oxide of antimony thus prepared is formed in two stages :—

$$1.\quad \overset{\text{Antimony Trichloride.}}{\mathrm{SbCl_3}} + \overset{\text{Water.}}{\mathrm{H_2O}} = \overset{\text{Antimony Oxychloride.}}{\mathrm{SbOCl}} + \overset{\text{Hydrochloric Acid.}}{\mathrm{2HCl}}$$

$$2.\quad \overset{\text{Antimony Oxychloride.}}{\mathrm{2SbOCl}} + \overset{\text{Sodium Carbonate.}}{\mathrm{Na_2CO_3}} = \overset{\text{Antimonious Oxide (Oxide of Antimony).}}{\mathrm{Sb_2O_3}} + \overset{\text{Sodium Chloride.}}{\mathrm{2NaCl}} + \overset{\text{Carbonic Anhydride.}}{\mathrm{CO_2}}.$$

Characters and Tests.—Greyish-white powder, fusible at a low red heat; insoluble in water, but readily dissolved by hydrochloric acid. The hydrochloric solution, dropped into distilled water, gives a white deposit (antimony oxychloride), which is immediately changed to orange (antimonious sulphide) by sulphuretted hydrogen. Should entirely dissolve when boiled with water and excess of potassium-hydrogen tartrate.

Actions and Uses.—Diaphoretic and febrifuge for the dog. Chiefly used in the preparation of tartarated antimony.

Preparations.—Pulvis Antimonialis; Antimonium Tartaratum.

ANTIMONIUM NIGRUM

BLACK ANTIMONY

Synonyms.—Antimonious Sulphide; Antimony Trisulphide; Tersulphide of Antimony.

Composition.—Sb_2S_3.

Mode of Preparation.—Native antimonious sulphide is fused in a perforated crucible placed over another; the siliceous impurities are retained by the upper crucible, and the molten sulphide which flows into the lower one is solidified by cooling, and reduced to a fine powder.

Characters and Tests.—Greyish-black crystalline powder. It dissolves entirely in boiling hydrochloric acid, evolving sulphuretted hydrogen and furnishing a solution (antimonious chloride) which throws down a white precipitate (antimony oxychloride) when poured into water.

Actions and Uses.—Alterative, anthelmintic, and emetic. Its action is uncertain and irregular, and should, therefore, not be employed as a remedial agent. Frequently given in combination with sulphur and nitrate of potash as an alterative to horses. Also used in the preparation of Liquor Antimonii Chloridi.

ANTIMONIUM TARTARATUM

TARTARATED ANTIMONY

Synonyms.—Potassium-Antimony Tartrate; Tartrate of Potassium and Antimony; Tartar Emetic; Emetic Tartar; Tartarized Antimony.

Composition.—$K(SbO)C_4H_4O_6 \cdot Aq$.

Mode of Preparation.—Take of—

Oxide of Antimony	5 ounces.
Acid Tartrate of Potash, in fine powder	6 ounces.
Distilled Water	2 pints.

Mix the oxide of antimony and acid tartrate of potash with sufficient distilled water to form a paste, and set aside for twenty-four hours; then add the remainder of the water, and boil for a quarter of an hour, stirring frequently. Filter, and set aside the clear liquid which contains the tartarated antimony, to crystallize. Pour off the mother liquor, evaporate to one third, and set aside, that more crystals may form. Dry the crystals (tartarated antimony) on filtering paper at the temperature of the air.

Antimonious Oxide.		Potassium-Hydrogen Tartrate.		Potassium-Antimony Tartrate (Tartarated Antimony).		Water.
Sb_2O_3	+	$2KHC_4H_4O_6$	=	$2K(SbO)C_4H_4O_6$	+	H_2O

Characters and Tests.—Colourless, transparent crystals, exhibiting triangular facets, soluble in water, and less so in proof spirit. Decrepitates, blackens, and emits an odour characteristic of tartrates when heated on platinum foil. Its solution in water gives, with hydrochloric acid, a white precipitate (antimony oxychloride) soluble in excess; if tartaric acid be previously added, no precipitate is formed by hydrochloric acid.

Actions and Uses.—*Internally:*—In excessive doses, irritant poison; in small doses it promotes the secretion of mucous membranes, skin, liver, pancreas, and kidneys, likewise stimulates the activity of the absorbent system; in larger doses it causes nausea, relaxes muscular fibres, depresses the nervous system, and, in animals capable of vomition, acts as an emetic. Used internally as an alterative, antiphlogistic, nauseant, sedative, and emetic. Given in the early stages of inflammatory diseases, in pneumonia, bronchitis, articular rheumatism, &c.; also employed as a vermifuge. *Externally:*—Vesicant, counter-irritant. Sometimes added to ordinary blistering ointments to increase their activity.

Doses.—*Alterative:*—Horse, ½ to 1 drachm.—Cattle, ½ to 1 drachm.

Antiphlogistic, Nauseant, Sedative:—Horse, 1 to 2 drachms.—Cattle, 2 to 6 drachms.—Dog, ⅛ to 2 grains.

Emetic:—Pig, 4 to 16 grains.—Dog, 1 to 4 grains.

Vermifuge:—Horse, 1 to 2 drachms.*

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* Should be given at night and followed by an aloetic purge next morning.

Modes of Application.—In the form of bolus, pill, or dissolved in water. As an emetic to dogs it may be given rolled up in a piece of meat.

Externally:—Liquor Antimonii Tartarati; Unguentum Antimonii Tartarati.

Incompatibles.—Gallic and tannic acids; alkalies; and lead salts.

Antidotes.—Tannic acid, or agents containing it, *e. g.* powdered gall-nuts, catechu, &c.

Preparations.—Liquor Antimonii Tartarati; Pulvis Antimonialis compositus; Unguentum Antimonii Tartarati.

AQUA DESTILLATA

DISTILLED WATER

Composition.—H_2O.

Mode of Preparation.—Take of—

Common Water . . . . 10 gallons.

Distil from a copper still, connected with a block-tin worm; reject the first half gallon, and preserve the next eight gallons.

Tests.—A fluid ounce evaporated in a clean glass capsule should leave scarcely any visible residue, indicating the absence of solid non-volatile impurities. Should not be affected by hydrosulphuric acid, ammonium oxalate, silver nitrate, barium chloride, or lime water, proving the absence of lead and other metals precipitable by sulphuretted hydrogen, calcium salts, chlorides, sulphates, carbonates, and carbonic acid respectively.

Uses.—In the preparation of, and for dissolving, many medicinal agents; also for making all aqueous solutions of tests. When distilled water cannot be obtained, its best substitute is boiled and filtered rain water.

AQUA MENTHÆ PIPERITÆ

PEPPERMINT WATER

Mode of Preparation.—Take of—

Oil of Peppermint	1½ fluid drachm.
Water	1½ gallon.

Distil one gallon.

Actions and Uses.—Carminative and stimulant. Used to relieve flatulence, and as a vehicle for other medicines.

Doses.—Horse, 8 to 10 fluid ounces.—Cattle, 8 to 12 fluid ounces.—Dog, 1 to 2 fluid ounces.

ARECÆ SEMINA

ARECA SEEDS

Synonyms.—Nux Areca Catechu; Araca Nut; Betel Nut.

The seeds or kernels of the fruit of the catechu or betel-nut palm, *Areca Catechu.*

Natural Order.—*Palmaceæ.*

Composition.—Their medicinal properties depend upon tannic and gallic acids.

Characters.—Spheroidal, about three quarters of an inch in diameter; hard; colour reddish brown; taste astringent.

Actions and Uses.—*Internally:*—Astringent; employed as an anthelmintic, especially for dogs.

Doses.—Horse, 4 to 6 drachms.—Cattle, 4 to 8 drachms.—Dog, 30 grains to 2 drachms.

Modes of Application.—The powdered seeds made into a bolus, or suspended in milk or gruel.

Incompatibles.—Same as Acidum Tannicum.

ARGENTI NITRAS

NITRATE OF SILVER

Synonyms.—Silver Nitrate; Lunar Caustic.

Composition.—$AgNO_3$.

Mode of Preparation.—Take of—

Purified Silver	3 ounces.
Nitric Acid	2½ fluid ounces.
Distilled Water	3 fluid ounces.

Put the silver into a flask, pour on to it the nitric acid and water, and apply a gentle heat until the metal is dissolved. Decant the clear liquid from any black powder (gold) which may be present into a porcelain dish, evaporate, and set aside to crystallize; pour off the liquor, and again evaporate and crystallize. Let the crystals (nitrate of silver) drain in a glass funnel, and dry them by exposure to the air, carefully avoiding the contact of all organic substances. To obtain the nitrate in rods, fuse the crystals in a platinum or thin porcelain capsule, and pour the melted salt into proper moulds. Nitrate of silver should be preserved in carefully stoppered bottles.

$$\underset{\text{Silver.}}{Ag_3} + \underset{\text{Nitric Acid.}}{4HNO_3} = \underset{\text{Silver Nitrate.}}{3AgNO_3} + \underset{\text{Nitric Oxide.}}{NO} + \underset{\text{Water.}}{2H_2O}$$

Characters and Tests.—Colourless tubular crystals, the primal form of which is the right rhombic prism; or in white cylindrical rods. Soluble in water and rectified spirit. A fragment heated on charcoal with the blowpipe melts, deflagrates, and leaves a white metallic coating of silver.

Its aqueous solution, mixed with excess of dilute hydrochloric acid, yields a white precipitate (silver chloride), which darkens by exposure to light, and which should entirely dissolve in ammonia. If the white precipitate, with its accompanying liquid, be thrown on a filter and thoroughly washed with boiling distilled water, the filtrate should leave no residue on evaporation, proving the absence of potassium nitrate, lead, zinc, and copper.

Actions and Uses.—*Internally* :—In excessive doses, irritant and corrosive poison; in medicinal doses, tonic and antispasmodic. It is sometimes given to the dog in chorea, epilepsy, and other nervous affections; also been found of service to the dog in diarrhœa, dysentery, and cholera. *Externally* :—Stimulant, astringent, and caustic. Used as a collyrium in conjunctivitis and similar superficial inflammatory complaints ; for the improvement of indolent sores, mange, ringworm, and other chronic skin diseases; as a caustic for the eradication of warts, fungous and other growths. Applied also to poisoned wounds, and to the bites of rabid and venomous animals.

Doses.—Dog :—In chorea, epilepsy, &c., ⅛ to ½ grain ; in diarrhœa, dysentery, and cholera, ¼ to 1 grain.

These doses should be repeated two or three times a day.

Modes of Application.—*Internally* :—In the form of bolus or pill. *Externally*.—In the form of stick; Liquor Argenti Nitratis; Unguentum Argenti Nitratis.

Incompatibles.—Sulphuric, hydrochloric, and hydrocyanic acids; alkalies; and soluble chlorides.

Antidotes.—Solution of common salt in some demulcent drink.

Preparations.—Liquor Argenti Nitratis; Unguentum Argenti Nitratis.

ARNICÆ RADIX

ARNICA ROOT

The dried rhizome and rootlets of *Arnica montana*, or Leopard's Bane. Collected in the mountains of middle and southern Europe.

Natural Order.—*Compositæ.*

Composition.—The most important, because probably the active, constituents are resin containing cytosin and arnicine (?), and volatile oil.

Characters.—Rhizome from one to three inches long, and from one tenth to three tenths of an inch thick, cylindrical, contorted, rough from the scars of the coriaceous leaves, and furnished with numerous long, slender fibres; has a peppery taste and peculiar odour.

Preparation.—Tinctura Arnicæ.

ASSAFŒTIDA

ASSAFŒTIDA

A gum resin obtained by incision from the living root of *Narthex assafœtida*, belonging to the natural order Umbelliferæ.

Composition.—Its active constituents are resinous matter and a volatile oil containing allyl sulphide $(C_3H_5)_2S$.

Characters.—Irregular masses, partly composed of tears, moist or dry. The colour of a freshly-cut or broken piece is opaque white, but gradually becomes purplish pink, and ultimately dull yellowish or pinkish brown. Taste bitter, acrid; odour (due to allyl sulphide) fetid, alliaceous, and persistent. Dissolves almost entirely in rectified spirit.

Powdered with difficulty, unless triturated with carbonate of potash.

Actions and Uses.—A moderate stimulant, powerful antispasmodic, expectorant, and vermifuge. Chiefly used in treating colic and coughs. Given also to dogs suffering from chorea and other nervous affections.

Doses.
Modes of Application. } Similar to Ammoniacum.

Preparations.—Enema Assafœtidæ; Spiritus Ammoniæ fœtidus; Tinctura Assafœtidæ.

ATROPIA

ATROPIA

Synonym.—Atropine.

Composition.—$C_{17}H_{23}NO_3$.

An extremely poisonous crystallizable alkaloid, obtained from belladonna root, and constituting the active principle of Belladonnæ Folia, Belladonnæ Radix, Extractum Belladonnæ, and Tinctura Belladonnæ.

BALSAMUM PERUVIANUM

BALSAM OF PERU

A balsam* obtained from *Myroxylon Pereira,* belonging to the natural order *Leguminosæ.* It exudes from the trunk of the tree after the bark has been scorched and removed. From Salvador, in Central America.

Composition.—A mixture of volatile oil called cinnamein. $C_{16}H_{14}O_2$ cinnamic acid, $HC_8H_8O_2$, and resinous compounds.

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* A balsam is a natural mixture of essential oil and resinous substances.

Characters.—Reddish-brown or nearly black liquid, translucent in thin films; syrupy consistence, balsamic odour, and an acrid slightly bitter taste; soluble in five parts of rectified spirit. Undergoes no diminution when mixed with water.

Actions and Uses.—Stimulant and antispasmodic. Used in the preparation of Tinctura Benzoini composita (Friar's Balsam).

BELLADONNÆ FOLIA

BELLADONNA LEAVES

The fresh leaves, with the branches to which they are attached, of Deadly Nightshade, *Atropa Belladonna;* also the leaves separated from the branches, and carefully dried and finely powdered; gathered from wild or cultivated British plants when the fruit has begun to form.

Natural Order.—*Atropaceæ.*

Characters.—Leaves alternate, three to six inches long, ovate, acute, entire, smooth, the uppermost in pairs, and unequal. The expressed juice, or an infusion, dropped into the eye, dilates the pupil.

Actions and Uses.—*Internally:*—In excessive doses, a narcotic-acrid poison; in medicinal doses, sedative, anodyne, and antispasmodic. In whatever doses it is administered, or by whatever channel it enters the circulation, it causes dilatation of the pupil. Given in colic, acute and chronic rheumatism, bronchitis, influenza, and in cases of sore throat and cough which often accompany or succeed this last-named disease.

Externally:—As a dressing for painful and irritable tumours; for tender enlarged glands; for cases of garget and sore throat; and, in the form of injection, for allaying irritation of the bladder or rectum, and counteracting spasmodic contractions of the uterus.

Doses.*—HORSE, 1 to 3 ounces.—CATTLE, 1 to 3 ounces. —SHEEP, 10 to 20 grains.—PIG, 8 to 12 grains.—DOG, 2 to 5 grains.

Modes of Application.—*Internally*:—In the form of bolus or pill. See also Extractum Belladonnæ; Tinctura Belladonnæ; Massa Belladonnæ compositus. *Externally*:—Emplastrum Belladonnæ; Unguentum Belladonnæ. As an injection, see Extractum Belladonnæ.

Antidotes.—An emetic of sulphate of copper, when practicable; purgatives to empty the alimentary canal; after vomition or purgation, administer opium in sufficient doses to counteract the effects of the belladonna. Move the animal about; affusions of cold water over the head and chest; artificial respiration; galvanism; ether; brandy; inhalations of ammonia.

Preparations.—Extractum Belladonnæ; Tinctura Belladonnæ.

BELLADONNÆ RADIX

BELLADONNA ROOT

The dried root of *Atropa Belladonna*, or deadly Nightshade. Cultivated in Britain or imported from Germany.

Natural Order.—*Atropaceæ.*

Characters.—From one to two feet long, and from half an inch to two inches thick; branched and wrinkled, brownish white. An infusion dilates the pupil.

Preparations.—Atropia, and Linimentum Belladonnæ.

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* Although the doses of the dried and powdered leaves are here given, Extractum Belladonnæ or Tinctura Belladonnæ is to be preferred for internal use.

BENZOINUM

BENZOIN

Synonym.—Gum Benzoin.

A balsamic resin, obtained from *Styrax Benzoin*, belonging to the natural order *Styraceæ*, by making incisions in the bark of the tree, and allowing the liquid that exudes to concrete by exposure to the air. Imported from Siam and Sumatra.

Composition.—Contains resins, benzoic acid ($HC_7H_5O_2$), volatile oil, and aromatic extract.

Characters.—Lumps consisting of agglutinated tears, or a brownish mottled mass with or without tears imbedded in it; has little taste, but an agreeable odour; gives off, when heated, fumes of benzoic acid; soluble in rectified spirit and in solution of potash.

Actions and Uses.—*Internally*:—Stimulant and antispasmodic; but seldom or never given at the present day. *Externally*:—Excitant to wounds and contusions in the form of Tinctura Benzoini composita (Friar's Balsam).

BOLI

BALLS

See Massæ (Masses).

BORAX

BORAX

Synonyms.—Sodium Diborate; Biborate of Soda.

Composition.—$2NaBO_2.\ B_2O_3.\ 10Aq.$ Found native in the waters of certain lakes in Thibet and Persia. Also imported in the crude state from the East Indies, under the name of tincal.

Mode of Preparation.—Jets of steam (*fumerolles* or *suffioni*) charged with boracic acid, HBO_2, which issue from the earth in Tuscany, are conducted into *lagoni* (little lakes), in which the acid condenses. The solution thus formed, after being concentrated by heat, is neutralized with sodium carbonate, and, on evaporation, yields crystals of borax.

$$\overset{\text{Boracic Acid.}}{4HBO_2} + \overset{\text{Sodium Carbonate.}}{Na_2CO_3} = \overset{\text{Sodium Diborate.}}{2NaBO_2.B_2O_3} + \overset{\text{Water.}}{2H_2O} + \overset{\text{Carbonic Anhydride.}}{CO_2}$$

In the act of crystallizing, the sodium diborate unites with ten molecules of water, and becomes $2NaBO_2.B_2O_3.10Aq$.

Characters and Uses.—Transparent colourless crystals, sometimes slightly effloresced, with a weak alkaline reaction; insoluble in rectified spirit. Solubility in water 1 in 22, boiling water 1 in 2. By the aid of 1 of glycerin 1 part of borax will dissolve in 12 of water. A hot saturated solution, when acidulated with any of the mineral acids, lets fall, as it cools, a scaly crystalline deposit of boracic acid, $HBO_2.Aq$, the solution of which in spirit of wine burns with a green flame.

Actions and Uses.—*Externally*:—Detergent and astringent in aphthous affections of the mouth.

Modes of Application.—A mixture of one part of finely powdered borax and six parts of honey or glycerin is applied to the part affected.

CALCII CHLORIDUM

CHLORIDE OF CALCIUM

Synonym.—Calcium Chloride.

Composition.—$CaCl_2$.

Mode of Preparation.—By neutralizing hydrochloric acid with marble (calcium carbonate), adding a little solution of calcium hypochlorite and calcium hydrate to the solution, filtering, evaporating until it becomes solid, and finally drying the salt at about 400° F.

When calcium carbonate dissolves in hydrochloric acid, calcium chloride, water, and carbonic anhydride are produced, thus:—

$$\overset{\substack{\text{Calcium}\\\text{Carbonate.}}}{CaCO_3} + \overset{\substack{\text{Hydrochloric}\\\text{Acid.}}}{2HCl} = \overset{\substack{\text{Calcium}\\\text{Chloride.}}}{CaCl_2} + \overset{\text{Water.}}{H_2O} + \overset{\substack{\text{Carbonic}\\\text{Anhydride.}}}{CO_2}$$

Any iron that the marble may contain in the state of carbonate passes into solution as ferrous chloride, and is converted into ferric chloride and ferric hydrate by the calcium hypochlorite.

$$\overset{\substack{\text{Ferrous}\\\text{Chloride.}}}{12FeCl_2} + \overset{\substack{\text{Calcium}\\\text{Hypochlorite.}}}{3Ca(ClO)_2} + \overset{\text{Water.}}{6H_2O} = \overset{\substack{\text{Calcium}\\\text{Chloride.}}}{3CaCl_2}$$

$$+ \overset{\substack{\text{Ferric}\\\text{Chloride.}}}{4Fe_2Cl_6} + \overset{\substack{\text{Ferric}\\\text{Hydrate.}}}{2Fe_2(HO)_6}$$

The calcium hydrate transforms the ferric chloride produced in the last reaction into ferric hydrate.

$$\overset{\substack{\text{Ferric}\\\text{Chloride.}}}{Fe_2Cl_6} + \overset{\substack{\text{Calcium}\\\text{Hydrate.}}}{3Ca(HO)_2} = \overset{\substack{\text{Calcium}\\\text{Chloride.}}}{3CaCl_2} + \overset{\substack{\text{Ferric}\\\text{Hydrate.}}}{Fe_2(HO)_6}$$

In this way the iron is precipitated, and by filtration it is completely removed.

Characters and Tests.—White agglutinated masses, dry, but very deliquescent. If hydrochloric acid be poured on it, no chlorine or hypochlorous acid should be evolved, proving the absence of calcium hypochlorite. Should dissolve entirely in water and alcohol. Lime water added to its aqueous solution should give no precipitate, indicating its freedom from iron.

Uses.—In consequence of its strong affinity for water, it is employed to withdraw this impurity from ether, and various other liquids, as well as from gases.

CALCIS HYDRAS

SLAKED LIME

Synonyms.—Calcium Hydrate; Hydrate of Lime.

Composition.—$Ca(HO)_2$.

Preparation.—Take of—

Freshly-burned Lime	2 pounds.
Distilled Water*	1 pint

Place the lime in a metal or earthenware vessel furnished with a lid; pour the water upon it, and when vapour ceases to be disengaged, cover the vessel with its lid, and set it aside to cool. When the temperature has fallen to that of the atmosphere, put the slaked lime on an iron-wire sieve, and, by gentle agitation, cause the fine powder to pass through the sieve, and reject what is left. Put the powder into a well-stoppered bottle, and keep it excluded as much as possible from the air, to prevent its absorbing carbonic anhydride. In the process of slaking, lime unites chemically with water.

$$\underset{\text{(Lime).}}{\underset{\text{Calcium Oxide}}{CaO}} + \underset{\text{Water.}}{H_2O} = \underset{\text{Hydrate.}}{\underset{\text{Calcium}}{Ca(HO)_2}}$$

Characters and Tests.—A white caustic and strongly alkaline powder. It is slightly soluble in water (1 in 800), more so in cold than hot. Should not effervesce on the addition of an acid, showing its freedom from carbonate.

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* Although distilled water is directed to be employed in this preparation by the 'British Pharmacopœia,' common water may be used in its stead.

Actions and Uses.—*Internally*:—Irritant, corrosive, and antacid. Given chiefly to cattle, as an antacid in indigestion, diarrhœa, and tympanitis. Sometimes employed as an antidote to poisoning by arsenic and irritant acids.

Doses.—HORSE, 1 to 3 drachms.— CATTLE, 1 to 3 drachms.—SHEEP, 20 grains to 1 drachm.—PIG, 20 grains to 1 drachm.—DOG, 5 to 20 grains.

Modes of Application.—*Internally*:—In the form of bolus or pill, or else suspended in water, milk, or some mucilaginous drink. Also administered as Liquor Calcis and Liquor Calcis Saccharatus.

Incompatibles.—Mineral and vegetable acids; metallic and ammoniacal salts; tartarated antimony.

Preparations. — Linimentum Calcis; Liquor Calcis; Liquor Calcis Saccharatus; Lotio Hydrargyri flava; Lotio Hydrargyri nigra.

CALUMBÆ RADIX

CALUMBA ROOT

Synonym.—Calumba Root.

The root of the *Jateorrhiza Calumba* and *Cocculus palmatus*, sliced transversely and dried.

Natural Order.—*Menispermaceæ.*

Characters and Tests.—The root consists of several fasciculated, fusiform, fleshy tubercles, which are brown externally and deep yellow internally, odourless, and very bitter. Moistened with a solution of iodine, it becomes blue, indicating presence of starch. A decoction is not blackened by the persalts of iron, indicating absence of astringent matter.

Composition.—The principal constituents of calumba are calumbin ($C_{21}H_{22}O_7$), and the alkaloid berberia ($C_{20}H_{17}NO_4$) combined with calumbic acid ($C_{22}H_{24}O_7$) and starch.

Actions and Uses.—Calumba root is an excellent tonic, promoting the appetite, assisting the digestive process, and improving the quality of the secretions from the gastro-intestinal mucous membranes. It does not appear either to constipate or relax the bowels.

Doses.—(Of the powder) HORSE, 2 to 4 drachms.—CATTLE, 2 to 6 drachms.—SHEEP, 1 to 2 drachms.—PIG, ½ to 1 drachm.—DOG, 10 to 20 grains.

Modes of Application.—The root is best administered in the form of powder or infusion.

Preparation.—Infusum Calumbæ.

CALX

LIME

Synonyms.—Calcium oxide; Oxide of Calcium; Quick-lime.

Composition.—CaO.

Mode of Preparation.—Some form of calcium carbonate, *e. g.* chalk, limestone, or marble, is calcined so as to expel carbonic anhydride; lime, mixed with a small amount of impurity, remains.

$$\underset{\text{Calcium Carbonate.}}{CaCO_3} = \underset{\text{Calcium Oxide (Lime).}}{CaO} + \underset{\text{Carbonic Anhydride.}}{CO_2}$$

Characters and Tests.—Compact masses of a whitish colour, which readily absorb water, and which, when rather less than their weight of water is added, crack, and fall into powder with the development of much heat. The powder thus obtained, agitated with distilled water and filtered, yields a clear solution, having an alkaline reaction, and which gives a white precipitate (calcium oxalate) with ammonium oxalate.

Actions and Uses.—*Externally:*—As a caustic and desiccant, dusted over the part affected.

Preparation.—Calcis Hydras.

CALX CHLORATA

CHLORINATED LIME

Synonyms.—Calcium Hypochlorite; Hypochlorite of Lime; Chloride of Lime.

Composition.—Not well established. By some authorities it is regarded as lime chloride $CaOCl_2$, by others as calcium hypochlorite $Ca(ClO)_2$; mixed with calcium chloride and variable quantities of calcium hydrate.

Preparation.—Slaked lime is exposed in stone chambers to the action of chlorine gas as long as the latter is absorbed. Assuming that the activity of chlorinated lime depends upon its containing calcium hypochlorite, its production may be thus explained:

$$\overset{\text{Calcium Hydrate.}}{2Ca(HO)_2} + \overset{\text{Chlorine.}}{Cl_4} = \overbrace{\overset{\text{Calcium Hypochlorite.}}{Ca(ClO)_2} + \overset{\text{Calcium Chloride.}}{CaCl_2}}^{\text{Chlorinated Lime.}} + \overset{\text{Water.}}{2H_2O}$$

Characters and Tests.—Dull white powder, with a feeble odour of chlorine; partially soluble in water. It evolves chlorine on being mixed with an acid. Its aqueous solution, mixed with a dilute mineral acid, bleaches indigo.

Actions and Uses.—*Internally:*—In tympanitis and hoven to absorb the carbonic anhydride and decompose the sulphuretted hydrogen which are developed in these affections. *Externally:*—Disinfectant, deodorizer, and stimulant. Applied to gangrenous wounds, fistulæ, phagedenic ulcers, thrush, canker, grease, and to the treatment of mange and other skin diseases. Also employed as a lotion for checking conjunctival ophthalmia and other circumscribed and superficial inflammations.

Doses.—HORSE, 2 to 4 drachms.—CATTLE, 2 to 4 drachms.—SHEEP, 1 to 2 drachms.

Modes of Application.—*Internally:*—Suspended in water, or, preferably, as Liquor Calcis Chloratæ. *Externally:*—Liquor Calcis Chloratæ; Unguentum Calcis Chloratæ.

Incompatibles.—Acids and most metallic salts.

Preparations.—Liquor Calcis Chloratæ; Unguentum Calcis Chloratæ; Vapor Chlori.

CAMBOGIA

GAMBOGE

A gum-resin obtained from *Garcinia Morella*, var. *pedicellata*, belonging to the natural order *Guttiferæ*. Imported from Siam.

Composition.—From sixty-eight to seventy-five per cent. of resin (active principle) $C_{20}H_{23}O_4$ gum, and a minute quantity of woody fibre.

Characters and Tests.—Cylindrical pieces, breaking easily with a smooth, conchoidal, glistening fracture; colour tawny, changing to yellow when rubbed with water; taste acrid.

If adulterated with starch, an emulsion, made with boiling water and cooled, becomes green if treated with solution of iodine.

Actions and Uses.—In large doses, irritant poison; in medicinal doses, purgative. Should not be given to horses or dogs, on account of the uncertainty and violence of its action. To cattle and sheep it is sometimes administered in indigestion; also, combined with aloes or sulphate of magnesia, in impactment of the omasum (*fardel bound*) and similar disorders.

Doses.—CATTLE, 4 to 8 drachms.—SHEEP, 15 to 30 grains.

Mode of Application.—Made into an emulsion with water.

Antidotes.—Demulcent drinks, and small, but repeated, doses of opium.

CAMPHORA

CAMPHOR

A concrete volatile oil (stearopten), obtained in China and Japan from the wood and other parts of a species of laurel, *Camphora officinarum*, belonging to the natural order *Lauraceæ*.

Composition.—$C_{10}H_{16}O$.

Mode of Preparation.—The small branches, leaves, wood, and root of the tree are cut into small pieces and boiled with water in an iron vessel, to which an earthen hood is luted; the camphor sublimes and condenses on straws placed within the hood. The crude product thus obtained, after its importation into Europe, is mixed with quicklime to retain impurities, and sublimed in glass vessels.

Characters and Tests.—White, translucent, tough,* and crystalline; has a powerful penetrating odour, and a pungent taste, followed by a sensation of cold; floats on water; volatilizes slowly at ordinary temperatures; slightly soluble in water, readily soluble in rectified spirit and in ether; sublimes entirely when heated.

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* Camphor is difficult to pulverize unless a little spirit of wine be added to it.

Actions and Uses.—*Internally*:—In large doses, irritant and narcotic poison; in medicinal doses, stimulant, sedative, antispasmodic; also, after long exhibition, diuretic. Occasionally given in tympanitis, and, combined with opium or digitalis, in chronic cough. *Externally*:—Discutient and anodyne for chronic sprains, bruises, and tumours, also for infiltration into the cellular tissue. Added to oil or ointment of cantharides, or sprinkled in fine powder over linseed poultices, it allays irritation, although for this purpose extract of belladonna is usually preferred.

Doses.—Horse, 1 to 2 drachms.—Cattle, 2 to 4 drachms.—Sheep, 10 to 30 grains,—Pig, 5 to 20 grains.—Dog, 3 to 10 grains.

Modes of Application.—*Internally*:—Spiritus Camphoræ; Oleum Camphorata, or in the form of ball or pill. *Externally*:—Linimentum Camphoræ; Linimentum Terebinthinæ; Linimentum Terebinthinæ Aceticum; Linimentum Saponis; Tinctura Camphoræ.

Incompatibles.—Camphor is not likely to be administered with anything that would counteract its effects.

Preparations.—

Linimentum Aconiti.
„ Belladonnæ.
„ Camphoræ.
„ Iodi Compositum.
„ Opii.
Linimentum Saponis compositum.
„ Terebinthinæ.
Spiritus Camphoræ.
Tinctura Camphoræ composita.

CANTHARIS

CANTHARIDES

Synonyms.—Cantharidis Vesicatoria; Lytta Vesicatoria; Blistering Fly; Spanish Fly.

Natural Order.—*Coleoptera.*

Composition.—Contains an active principle called cantharidin, $C_5H_{12}O_2$.

The beetles are collected, chiefly in Hungary, at night time, by shaking the trees on which they feed, and so causing them to fall into cloths placed beneath the trees for their reception. After being transferred to sieves, they are killed by the vapour of vinegar or turpentine, or by being placed in a vacuum, and finally dried.

Characters and Tests.—From eight tenths to an inch in length; furnished with two wing-covers of a shining metallic green colour, under which are two membranous transparent wings; odour strong and disagreeable; powder greyish brown, containing shining green particles. Should be free from mites.

Actions and Uses.—*Internally*:—In large doses, irritant poison; in medicinal doses, stimulant, diuretic. With vegetable bitters, sometimes used as a stimulating tonic in cases of debility, accompanied or not with anasarca; also in farcy, glanders, and some other affections. As cantharides are liable to inflame the neck of the bladder and cause strangury, they are seldom employed as a diuretic. *Externally*:—Rubefacient, vesicant, counter-irritant, stimulant. Employed as a blister, and for charging materials used for setons; also to promote the adhesion of unhealthy wounds and fistulæ; to stimulate weak and callous ulcers; and to induce an improved condition of skin in mallenders, ringworm, and inveterate mange; likewise to promote the growth of hair.

Doses.—Horse, 5 to 10 grains.—Cattle, 10 to 20 grains.—Sheep, 2 to 8 grains.—Pig, 1 to 4 grains.—Dog, ¼ to 1 grain.

Modes of Application.—*Internally:*—In a bolus, or as Tinctura Cantharidis. *Externally:*—To keep up discharges, also to increase the activity of mustard poultices and similar applications, the powdered insect is used. To promote the growth of hair, a solution of one part of cantharides in twenty parts of acetic acid, or an ointment consisting of one part of cantharides and twenty parts of lard, is to be applied with friction. For the other applications of cantharides, see the "Preparations" enumerated below.

Preparations.—

Acetum Cantharidis.
Linimentum Cantharidis.
Liquor Cantharidis Terebinthinæ.
Oleum Cantharidis.
Tinctura Cantharidis.
„ „ fortior.
Unguentum Cantharidis.

CAPSICI FRUCTUS

CAPSICUM FRUIT

The dried ripe fruit of *Capsicum fastigiatum.* Imported from Zanzibar, and, in a pulverized state, in gourds from the West Indies. It is distinguished in commerce as Guinea Pepper and Pod Pepper; when powdered, and mixed with a fourth part of common salt, it forms the well-known condiment "Cayenne Pepper."

Natural Order.—*Solanaceæ.*

Composition.—The fruit contains an alkaloid and a crystallizable solid oil, to both of which the name capsicine has been applied; the latter body is very acrid, and constitutes the active principle of capsicum.

Characters and Tests.—Pod membranous, from five to eight tenths of an inch long, two tenths of an inch broad; straight, conical, pointed, smooth, shining, but somewhat corrugated; orange red; intensely hot taste.

Actions and Uses.—*Internally:*—In large doses, irritant poison; in medicinal doses, stimulant and carminative. *Externally:*—Rubefacient and vesicant.

Doses.—Horse, 5 to 20 grains.—Cattle, 10 to 30 grains.—Sheep, 5 to 10 grains.—Pig, 2 to 8 grains.—Dog, 1 to 5 grains.

Modes of Application.—*Internally:*—The powdered fruit in a bolus, or, preferably, suspended in gruel. *Externally:*—In the form of ointment.

CARBO LIGNI

WOOD CHARCOAL

Composition.—Carbon mixed with from one to five per cent. of ash.

Mode of Preparation.—By exposing various kinds of wood to a red heat without access of air.

Characters.—Black, brittle, porous masses, tasteless, odourless, very light; retains the shape and texture of the wood from which it was obtained. When burned with free access of air it should not leave more than two per cent. of ash.

Actions and Uses.—Deodorizer, disinfectant, desiccant. *Internally:*—In dyspepsia, accompanied by flatus, to absorb the gases causing gastric distension; in diarrhœa and dysentery to correct the fetor of the evacuations; as an antidote to arsenic, aconite, strychnia, and probably to most vegetable poisons.* *Externally*:— As a desiccant and deodorizer to unhealthy wounds and phagedenic ulcers, especially when accompanied by fetid and irritating discharges; also in cases of mange, scab, and grease.

Wood charcoal, particularly when strongly heated and subsequently cooled just before being used, is a valuable deodorizer if strewn over the floors of a stable, &c., or sprinkled over putrefying substances.

Doses.—HORSE, ½ to 1 ounce.—CATTLE, 1 to 2 ounces.—SHEEP, 1 to 3 drachms.—PIG, 1 to 3 drachms.—DOG, 20 to 60 grains.

Modes of Application.—*Internally*:—Pulverized and mixed with gruel or some mucilaginous drink. *Externally*:—Dusted over the part in the state of powder, or as Cataplasma Carbonis.

Preparation.—Cataplasma Carbonis.

CARDAMOMUM

CARDAMOMS

The dried capsules of the Malabar cardamom, *Elettaria Cardamomum*. Cultivated in Malabar. The seeds are best kept in their pericarps, from which they should be separated when required for use, the pericarpal coats being rejected.

Natural Order.—*Zingiberaceæ*.

Composition.—The therapeutic activity of cardamoms is due to a volatile oil contained in the seeds.

Characters.—Seeds obtusely angular, corrugated, reddish brown; internally white, with a warm, aromatic agreeable taste and odour; contained in ovate-oblong, triangular, pale brown, coriaceous, ribbed pericarps.

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* Animal charcoal (*Carbo Animalis*) is to be preferred to wood charcoal, in consequence of its greater absorptive power for the poisons above referred to.

Actions and Uses. **Doses.** **Modes of Application.**	Same as Anisi Fructus.

CARUI FRUCTUS

CARAWAY FRUIT

Synonym.—Caraway Seeds.

The dried fruit of *Carum carui.* Cultivated in England and Germany.

Natural Order.—*Umbelliferæ.*

Composition.—The active principle is a volatile oil.

Characters.—Fruit usually separating into two parts, which are about two tenths of an inch long, curved, tapering at each end, brown, with five paler longitudinal ridges; agreeable aromatic odour and spicy taste.

Actions and Uses. **Doses.** **Modes of Application.**	Same as Anisi Fructus.

CARYOPHYLLUM

CLOVES

The dried unexpanded flower-buds of *Caryophyllus aromaticus.* Cultivated in Penang, Bencoolen, and Amboyna.

Natural Order.—*Myrtaceæ.*

Composition.—The active principle is a volatile oil.

Characters and Test.—About six tenths of an inch long; dark reddish brown; plump and heavy; consisting of a nearly cylindrical body surmounted by four teeth and a globular head; strong fragrant odour, and a bitter, spicy, pungent taste. Emits oil when indented with the finger-nail.

Actions and Uses. **Doses.** **Modes of Application.**	Same as Anisi Fructus.

CASCARILLÆ CORTEX

CASCARILLA BARK

The bark of *Croton Eluteria.* From the island of Eluthera, one of the Bahamas.

Natural Order.—*Euphorbiaceæ.*

Composition.—Its therapeutic actions depend upon a crystalline bitter principle, *cascarillin,* and a volatile oil.

Characters.—Quills, two or three inches long, and from two to five tenths of an inch in diameter; dull brown, but more or less coated with white crustaceous lichens; breaks with a short resinous fracture; warm and bitter taste, and emits a fragrant odour when burned.

Actions and Uses.—Aromatic tonic and slightly astringent. Sometimes given in indigestion, diarrhœa, chronic typhus affections, and during convalescence from debilitating diseases.

Doses.—Horse, 2 to 4 drachms.—Cattle, 2 to 4 drachms.—Sheep, 1 to 2 drachms.—Pig, 1 to 2 drachms.—Dog, ½ to 1 drachm.

Mode of Application.—In the form of ball.

CATAPLASMA CALCIS CHLORATÆ

CHLORINATED LIME POULTICE

Take of—

Solution of Chlorinated Lime	2 fluid ounces.
Linseed Meal	4 ounces.
Boiling water	8 fluid ounces.

Mix the linseed meal gradually with the water, and add the solution of chlorinated lime, with constant stirring.

Use.—Deodoriser, antiseptic, and excitant to unhealthy wounds and ulcers.

CATAPLASMA CARBONIS

CHARCOAL POULTICE

Take of—

Wood Charcoal, in powder	½ ounce.
Linseed Meal	3½ ounces.
Boiling Water	10 fluid ounces.

Add the linseed meal to the water, and stir them together so that a soft poultice may be formed. Mix with this half the charcoal, and sprinkle the remainder on the surface of the poultice.

Use.—Applied while warm to absorb the fetor of foul ulcers.

CATAPLASMA FERMENTI

YEAST POULTICE

Take of—

Beer Yeast	6 fluid ounces.
Wheaten Flour	14 ounces.
Water heated to 100° F.	6 fluid ounces.

Mix the yeast with the water, and stir in the flour. Place the mass near the fire till it rises.

Use.—Stimulant and antiseptic to indolent ulcers.

CATAPLASMA FURFURI

BRAN POULTICE

Take of—

Bran	2 to 3 parts.
Linseed Meal	1 part.
Boiling Water	A sufficiency.

Mix the bran and linseed meal together, and then add the water, with constant stirring, so as to form a soft poultice.

Use.—Emollient; relaxes the vessels of the part to which it is applied, and thereby allays pain and inflammation.

CATAPLASMA LINI*

LINSEED POULTICE

Take of—

Linseed Meal	4 ounces.
Olive Oil	½ fluid ounce.
Boiling Water	10 fluid ounces.

Mix the linseed meal gradually with the water, and then add the oil, with constant stirring.

Use.—Same as Cataplasma Furfuri. Opium, belladonna, or subacetate of lead may be added to this poultice when it is desired to allay irritation.

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* Carrots or turnips, well boiled and mashed, form an efficient poultice for ill-conditioned ulcers.

CATAPLASMA SINAPIS

MUSTARD POULTICE

Take of—

Mustard, in powder	2½ ounces.
Linseed Meal	2½ ounces.
Warm* Water	10 fluid ounces.

Mix the linseed meal gradually with the water, and add the mustard, with constant stirring.

Use.—Rubefacient to allay inflammations of serous and mucous surfaces; to relieve congestion of various organs and to alleviate neuralgic and other pains and spasms.

CATAPLASMA SINAPIS AMMONIATA

AMMONIATED MUSTARD POULTICE

Take of—

Mustard, in powder } of each a sufficiency.
Solution of Ammonia }

Mix so as to form a poultice.†

Use.—Similar to, but much more powerful than, Cataplasma Sinapis.

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* Boiling water should not be used, as a temperature of 212° F. prevents the formation of the vesicating principle, allyl sulphocyanide.

† Oil of turpentine is sometimes added to this poultice, but such addition should be omitted in treating affections of the kidneys.

CATECHU PALLIDUM

PALE CATECHU

Synonym.—Terra Japonica.

An extract of the leaves and young shoots of *Uncaria Gambir*, belonging to the natural order *Cinchonaceæ*. Prepared at Singapore and in other places in the Eastern Archipelago.

Composition.—Mainly consists of catechin $C_{13}H_{12}O_5$, and tannic acid.

Mode of Preparation.—The leaves of *Uncaria Gambir* are boiled in water immediately after they are pulled from the tree, and the decoction concentrated and run into square or parallelopiped moulds, to form the commercial cubes of catechu.

Characters.—Cubes, or masses formed of coherent cubes; the former about an inch in diameter, externally brown, internally ochrey yellow or pale brick-red, breaks easily with a dull earthy fracture. Taste bitter, very astringent, and mucilaginous, succeeded by slight sweetness. Entirely soluble in boiling water. The decoction, when cool, should not be rendered blue by iodine, indicating the absence of starch.

Actions and Uses.—Astringent. *Internally:*—Given in atony and relaxation, and in excessive mucous discharges, especially from the alimentary canal; also in diarrhœa. *Externally:*—To sluggish sores and ulcerations, for excoriations on the udder, &c.

Doses.—Horse, 1 to 2 drachms.—Cattle, 1 to 3 drachms.—Sheep, ½ to 1 drachm.—Pig, 10 to 20 grains.—Dog, 1 to 10 grains. Three or four times a day.

Modes of Application.—*Internally:*—Massa Catechu composita; Infusum Catechu; Tinctura Catechu, or the powder in sufficient gruel or mucilage to mask its astringent flavour. Catechu is likewise given with aromatics to remove flatulency, with opium to allay irritability, and with magnesia or an alkaline carbonate to correct acidity. *Externally:*—The powder; Infusum Catechu; and, occasionally, Unguentum Catechu.

Incompatibles.—Alkalies (?); most metallic salts; gelatin.

Preparations.—Infusum Catechu; Massa Catechu composita; Tinctura Catechu; Unguentum Catechu.

CERA FLAVA

YELLOW WAX

Synonym.—Unbleached Beeswax.

A secretion of certain glands (*wax pockets*) situated on the abdomen of the common bee, *Apis mellifica*, and used by the insect for constructing the cells of the honeycomb.

Composition.—A mixture of myricin, cein, and cerolein.

Mode of Preparation.—The comb, after being freed from honey by dripping and pressure, is melted in hot water to free it from impurities; the residue constitutes yellow wax. White wax (*Cera Alba*) is obtained by agitating molten yellow wax with water, and bleaching in the open air.

Characters.—Firm, breaking with a granular fracture; yellowish, having an agreeable honey-like odour. Not unctuous to the touch; does not melt at 140° F.; yields nothing to rectified spirit, but is entirely soluble in oil of turpentine. Boiling water, in which it has been agitated, when cooled, should not be rendered blue by iodine, showing its freedom from starch.

Actions and Uses.—Emollient.

Preparation.—Emplastrum Picis.

CEREVISIÆ FERMENTUM

BEER YEAST

The ferment obtained in brewing beer

Characters.—Viscid, semifluid, frothy, exhibiting under the microscope numerous round or oval confervoid cells, *Torulæ cerevisiæ*.

Preparation.—Cataplasma Fermenti.

CHLORALIS HYDRAS

HYDRATE OF CHLORAL

Synonyms.—Chloral Hydrate; Trichloraldehyd.

Composition.—$C_2HCl_3O \cdot H_2O$.

Mode of Preparation.*—Dry chlorine gas is passed for several days through absolute alcohol, which is at first kept cool to prevent explosion, but which, towards the end of the operation, is heated to nearly its boiling-point to complete the decomposition. The resulting liquid (impure chloral, C_2HCl_3O) is exposed to the air for a day or two, when it absorbs water and becomes converted into a solid mass of crude chloral hydrate. This is purified by agitating it with four times its bulk of concentrated sulphuric acid, separating the anhydrous chloral which floats on the surface, and subjecting it to fractional distillation. The anhydrous chloral thus purified is placed in a still with eleven per cent. of water, and distilled off chalk to remove any hydrochloric acid that may be present. The solid distillate (chloral hydrate) obtained in this manner is fused and cast in shallow vessels into cakes.

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* Dr Squire's process.

$$\begin{array}{ccccccccc} & \text{Alcohol.} & & \text{Chlorine.} & & \text{Chloral.} & & \text{Hydrochloric Acid.} \\ 1. & C_2H_6O & + & Cl_8 & = & C_2HCl_3O & + & 5HCl. \end{array}$$

$$\begin{array}{cccccc} & \text{Chloral.} & & \text{Water.} & & \text{Chloral Hydrate.} \\ 2. & C_2HCl_3O & + & H_2O & = & C_2HCl_3\ (HO)_2. \end{array}$$

Characters and Tests.—White, opaque, crystalline solid; pungent odour, resembling that of a ripe melon; soluble in water, alcohol, and glycerin. One hundred grains dissolved in ½ oz. of distilled water, well shaken with 1 oz. of Liquor Potassæ, and allowed to stand several hours in a well-stoppered bottle, will, if pure, yield a layer of at least 46 grain measures of chloroform.

Actions and Uses.—*Internally:*—In excessive doses, narcotic poison; in medicinal doses, stimulant, sedative, anodyne, antispasmodic, and narcotic. Said to possess the good, but none of the objectionable qualities of opium, for which agent it has been extensively substituted.*

Doses.—HORSE, ¼ to ½ ounce.—CATTLE, ¼ to 1 ounce—SHEEP, 1 to 2 drachms.—PIG, 1 to 2 drachms.—DOG, 10 to 30 grains.

Mode of Application.—Dissolved in a sufficiency of water to form a draught.

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* Dr Tuke, in speaking of its effects on maniacal patients, says, "Its advantages over other hypnotics are as follows: it is more uniform in its action and its effects are more lasting; it has no depressing influence, it does not constipate nor produce nausea."

CHLOROFORMUM

CHLOROFORM

Synonyms.—Formyl Trichloride; Terchloride of Formyl.

Composition.—$CHCl_3$.

Mode of Preparation.—Take of—

Chlorinated Lime	10 pounds.
Rectified Spirit	30 fluid ounces.
Slaked Lime	A sufficiency.
Water	3 gallons.
Sulphuric Acid	A sufficiency.
Chloride of Calcium, in small fragments	2 ounces.
Distilled Water	9 fluid ounces.

Place the water and the spirit in a capacious still, and raise the mixture to the temperature of 100° F. Add the chlorinated lime and five pounds of the slaked lime, and mix thoroughly. Connect the still with a condenser terminating in a narrow-necked receiver, and apply heat so as to cause distillation, taking care to withdraw the fire the moment that the process is well established. When the distilled product measures fifty ounces the receiver is to be withdrawn. Pour its contents into a gallon bottle half filled with water, mix well by shaking, and set at rest for a few minutes, when the mixture will separate into two layers of different densities. Let the lower layer, which constitutes crude chloroform, be washed by agitating it in a bottle with three ounces of the distilled water. Allow the chloroform to subside, withdraw the water, and repeat the washing, with the rest of the distilled water, in successive quantities of three ounces at a time. Agitate the washed chloroform for five minutes in a bottle with an equal volume of sulphuric acid, allow the mixture to settle, and transfer the upper layer of liquid to a flask containing the chloride of calcium mixed with half an ounce of perfectly dry slaked lime, and mix well by agitation. After the lapse of an hour connect the flask with a Liebig's condenser, and distil over the pure chloroform by means of a water-bath. Preserve the product in a cool place in well-stoppered bottles. The lighter liquid which floats on the crude chloroform after its agitation with water, and the washings with distilled water, should be preserved and employed in a subsequent operation.

The exact nature of the chemical changes which occur in the production of chloroform by the foregoing process is still undetermined, but the following equations represent the probable reactions which take place :—

	Alcohol.		Oxygen from the Calcium Hypochlorite (Chlorinated Lime).		Aldehyd.		Water.
1.	$2C_2H_6O$	+	O_2	=	$2C_2H_4O$	+	$2H_2O$
	Aldehyd.		Chlorine from the Calcium Hypochlorite (Chlorinated Lime).		Chloral.		Hydrochloric Acid.
2.	C_2H_4O	+	Cl_6	=	C_2HCl_3O	+	$3HCl$
	Chloral.		Calcium Hydrate.		Chloroform.		Calcium Formate.
3.	$2C_2HCl_3O$	+	CaH_2O_2	=	$2CHCl_3$	+	$Ca(CHO_2)_2$

Characters and Tests.—Limpid, colourless liquid, of an agreeable etherial odour and sweet taste. Soluble in alcohol and ether in all proportions; dissolves slightly in water, communicating to it a sweetish taste. Burns, though not readily, with a green and smoky flame. Sp. gr. 1·49. Should not be coloured by agitation with sulphuric acid, and should leave no residue nor unpleasant odour after evaporation.

Actions and Uses.—In excessive doses, whether the liquid be swallowed or the vapour inhaled, narcotic poison; in medicinal doses, stimulant and antispasmodic; breathed in admixture with air, anæsthethic.

Doses.—See Spiritus Chloroformi.

Modes of Application.—As an antispasmodic; Spiritus Chloroformi. As an anæsthetic, a sponge saturated with *pure* chloroform is placed in the bottom of a nose-bag attached to the patient's head, and perforated so as to ensure the chloroform vapour being mixed with a sufficiency of air.

Antidote.—Fresh air.

Preparation.—Spiritus Chloroformi; Tinctura Chloroformi composita.

CINCHONÆ FLAVÆ CORTEX

YELLOW CINCHONA BARK

The bark of *Cinchona Calisaya.* Collected in Bolivia and Southern Peru.

Composition.—Its therapeutic value depends upon the presence of quinine ($C_{20}H_{24}N_2O_2$), and cinchona ($C_{20}H_{24}N_2O$), which, with several other alkaloids, exist in the bark in combination with kinic, kinovic, and tannic acids.

Mode of Preparation.—The trees are generally cut down and the bark, after removal from the stem and branches, is carefully dried, so that it may retain its bright colour; the larger and thicker portions are dried, so as to form flat pieces, while the smaller are allowed to curl into quills. Unless very coarse or injured. the epidermis, with the lichens which grow on it, is carefully preserved on the bark.

Characters.—Flat pieces, uncoated or deprived of the periderm, rarely in coated quills, from six to eighteen inches long, one to three inches wide, and two to four tenths of an inch thick, compact and heavy; outer surface brown, marked by broad, shallow, irregular, longitudinal depressions; inner surface tawny yellow and fibrous; transverse fracture shortly and finely fibrous. Powder cinnamon brown, somewhat aromatic; persistently bitter.

Test.—Boil one hundred grains of the finely-powdered bark, for a quarter of an hour, in a fluid ounce of distilled water, acidulated with ten minims of hydrochloric acid, and allow it to macerate for twenty-four hours. Transfer the whole to a small percolator, and, after the fluid has ceased to drop, add at intervals about an ounce and a half of similarly acidulated water, or until the fluid which passes through is free from colour. Add to the percolated fluid solution of subacetate of lead until the whole of the colouring matter has been removed, taking care that the fluid remains acid in reaction. Filter and wash with a little distilled water. To the filtrate add about thirty-five grains of caustic potash, or as much as will cause the precipitate which is at first formed to be nearly redissolved, and afterwards six fluid drachms of pure ether. Then shake briskly, and having removed the ether, repeat the process twice with three fluid drachms of ether or until a drop of the ether employed leaves, on evaporation, scarcely any perceptible residue. Lastly, evaporate the mixed etherial solutions in a capsule at the temperature of boiling water. The residue, which consists of nearly pure quinia, when dry, should weigh not less than two grains, and should be readily soluble in diluted sulphuric acid.

Actions and Uses.—*Internally*:—Tonic and astringent. Given in debility; in periodic and intermittent diseases, *e.g.* spasm, neuralgia, and periodical hæmorrhage; in continued fever, rheumatism, and erysipelas; in chronic atonic affections of the alimentary canal, *e.g.* dyspepsia; in chorea, passive hæmorrhages, profuse mucous discharges, leucorrhœa, and chronic diarrhœa; in enlargements and indurations of the absorbent glands in scrofula; in convalescence after either acute or lingering maladies, and during debility after surgical operations. *Externally:*—Astringent and antiseptic in leucorrhœa and to fetid ulcers.

Doses.—HORSE, 2 to 4 drachms.—CATTLE, 2 to 4 drachms.—SHEEP, 1 to 2 drachms.—PIG, 1 to 2 drachms.—DOG, ½ to 1 drachm. Twice or thrice a day. Sometimes the administration of cinchona to dogs is followed by nausea or vomition; in such cases the dose should be greatly diminished.

Modes of Application.—*Internally:*—The powdered bark, in the form of ball; Infusum Cinchonæ flavæ; Tinctura Cinchonæ flavæ. *Externally:*—Infusum Cinchonæ flavæ; Tinctura Cinchonæ flavæ.

Incompatibles.—Alkalies; alkaline carbonates; metallic salts; gelatin.

Preparations.—Infusum Cinchonæ flavæ; Tinctura Cinchonæ flavæ.

CINCHONÆ PALLIDÆ CORTEX

PALE CINCHONA BARK

Therapeutic properties, uses, and doses, similar to those of Cinchonæ Flavæ Cortex.

CINCHONÆ RUBRÆ CORTEX

RED CINCHONA BARK

Therapeutic properties, uses, and doses, similar to those of Cinchonæ Flavæ Cortex.

COLCHICI CORMUS

COLCHICUM CORM

The fresh corm of Meadow Saffron, *Colchicum autumnale*, belonging to the natural order *Melanthaceæ*; collected about the end of June, stripped of its coats, sliced transversely, and dried at a temperature not exceeding 150° F.

Composition.—Contains a poisonous, crystallizable alkaloid called colchicia ($C_{17}H_{19}NO_5$).

Characters.—Fresh corm about the size of a chestnut, flattened where it has an undeveloped bud; furnished with an outer brown and an inner yellow coat; internally white, solid, and fleshy, yielding, when cut, a milky, acrid, and bitter juice. Dried slices about a tenth of an inch thick, moderately indented on one, rarely on both, sides; firm, flat, whitish, amylaceous.

Actions and Uses.—In excessive doses, irritant poison; in medicinal doses, cathartic, emetic, and sedative; it also increases the secreting action of the skin, kidneys, and particularly that of the intestinal mucous membrane. Occasionally prescribed on account of its sedative and diuretic qualities, in small and frequently repeated doses, in rheumatism and rheumatic influenza, also in deep-seated or constitutional ophthalmia.

Doses.—Horse, ½ to 2 drachms.—Cattle, ½ to 2 drachms.—Sheep, 5 to 30 grains.—Dog, 2 to 8 grains.

Modes of Administration.—In powder, ball, or Tinctura Colchici Seminum.

Incompatibles.—Tincture of Iodine; Guaiacum; and all astringents.

Antidotes.—Emetics, where practicable, followed by demulcent drinks; and, if coma be present, brandy, ammonia, and other powerful stimulants.

COLCHICI SEMINA

COLCHICUM SEEDS

The fully ripe seeds of *Colchicum autumnale.*

Characters.—About the size of white mustard seed; very hard, and of a reddish-brown colour.

Actions and Uses. Similar to those of the corm, but by some considered milder and more certain.

Doses.—Same as of corm.

Preparation.—Tinctura Colchici Seminum.

COLLODIUM

COLLODION

Take of—

Pyroxylin	1 ounce.
Ether	36 fluid ounces.
Rectified Spirit	12 fluid ounces.

Mix the ether and the spirit, and add the pyroxylin.

Set aside for a few days, and, should there be any sediment, decant the clear solution. Keep in a well-corked or stoppered bottle.

Characters.—Colourless, highly inflammable liquid, with ethereal odour, which dries rapidly on exposure to the air, and leaves a thin transparent film, insoluble in water or rectified spirit.

Uses.—As an adhesive to excoriations, ulcers, burns, wounds, &c.; likewise in erysipelas.

Mode of Application.—Brushed over the part. The applications are repeated, at intervals of a few minutes, until the film has become sufficiently thick to protect the affected part from atmospheric and other causes of irritation.

COLLODIUM FLEXILE

FLEXIBLE COLLODION

Take of—

Collodion	6 fluid ounces.
Canada Balsam . . .	120 grains.
Castor Oil	1 fluid drachm.

Mix, and keep in a well-corked bottle.

Uses and mode of application similar to those of Collodion, to which, however, this preparation is superior on account of its elasticity.

COLLODIUM HÆMOSTATICA

HÆMOSTATIC COLLODION*

Take of—

Collodion	10 fluid ounces.
Carbolic Acid	1 ounce.
Tannic Acid	½ ounce.

Dissolve.

Action and Use.—*Externally*:—Styptic.

Mode of Application.—Same as Collodion.

CONFECTIO ROSÆ GALLICÆ

CONFECTION OF ROSES

Take of—

Fresh Red Rose Petals . .	1 pound.
Refined Sugar	3 pounds.

Beat the petals to a pulp in a stone mortar, add the sugar, and rub them well together.

Use.—In making Pilula Hydrargyri cum ferro.

CORIANDRI FRUCTUS

CORIANDER FRUIT

Synonym.—Coriander Seed.

The dried fruit of *Coriandrum sativum*, belonging to the naturalorder *Umbelliferæ*. Cultivated in Britain.

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* Dr Pavisi's process, with benzoic acid omitted.

Composition.—The active principle is a volatile oil $(C_{10}H_{16}H_2O)$.

Characters.—Globular, nearly as large as white pepper, beaked, finely ribbed, yellowish brown; has an agreeable aromatic odour and flavour.

Actions and Uses.	Same as Anisi Fructus.
Doses.	
Modes of Application.	

CREASOTUM

CREASOTE

A product of the distillation of wood tar.

Composition.—A mixture of carbolic and kresylic acids with other bodies.

Characters and Tests.—Liquid, colourless or with a yellowish tinge, and a strong empyreumatic odour. Sparingly dissolved by water, but freely by alcohol, ether, and glacial acetic acid. Sp. gr. 1·071. Coagulates albumen. A slip of deal dipped into it, and afterwards into hydrochloric acid, acquires on exposure for a short time to the air a greenish-blue colour. Dropped on white filtering paper and exposed to a heat of 212° F., it leaves no translucent stain. It turns the plane of polarization of a ray of polarized light to the right. Is not solidified by the cold produced by a mixture of hydrochloric acid and sodium sulphate.

Actions and Uses.	Similar to those of Acidum Carbolicum.
Doses.	
Modes of Application.	
Antidotes.	

Preparation.—Linimentum Creasoti compositum; Unguentum Creasoti.

CRETA

CHALK

Native friable calcium carbonate (carbonate of lime) $CaCO_3$, with small quantities of siliceous and other impurities.

Preparation.—Creta Præparata.

CRETA PRÆPARATA*

PREPARED CHALK

Chalk freed from most of its impurities by elutriation, and afterwards dried in small, usually conical, masses.

Characters and Tests.—White amorphous powder; dissolves with effervescence (escape of carbonic anhydride) in dilute hydrochloric acid, indicating that it is a carbonate, and leaving only a small residue. The solution thus formed gives with ammonium oxalate a white precipitate (calcium oxalate), showing the presence of calcium. The salt (calcium chloride) formed by dissolving prepared chalk in hydrochloric acid, if rendered neutral by evaporation to dryness, and redissolved in water, gives only a very scanty precipitate on the addition of saccharated solution of lime, showing the absence of calcium phosphate.

Actions and Uses.—*Internally:*—Antacid in indigestion, chronic diarrhœa, and dysentery; antidote to oxalic and most other acids. *Externally*:—Desiccant for absorbing irritating discharges; for protecting wounds, burns, and scalds from the air; also in erysipelas.

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* "Whiting" may be substituted for this preparation in veterinary practice.

Doses.—Horse, ½ to 1 ounce.—Cattle, 1 to 2 ounces.—Sheep, 2 to 4 drachms.—Pig, 1 to 2 drachms.—Dog, 5 to 15 grains.

Modes of Application.—*Internally*:—In the form of bolus, or suspended in gruel, mucilage, or milk. Given in diarrhœa and dysentery; seldom administered alone, but usually in combination with opium, ginger, and catechu; see Mistura Cretæ composita. *Externally*:—As a desiccant it is used in the form of powder; to scalds and burns it may be applied mixed with water into a stiff paste.

Incompatibles.—All acids.

Preparations. — Hydrargyrum cum Creta; Mistura Cretæ composita.

CROCUS

SAFFRON

The dried stigma, and part of style of *Crocus satinis*. Imported from Spain, France, and Italy.

Natural Order.—*Iridaceæ*.

Composition.—Contains an active principle called saffranin ($C_{48}O_{60}H_{18}$), a volatile oil, and also a colouring matter, crocin ($C_{16}H_{18}O_{16}$).

Characters and Tests.—Hay saffron consists of the dried parts of the styles, with their attached stigmas entangled together. The odour of saffron is penetrating, aromatic, and, in large quantities, narcotic. The taste is bitter, and somewhat aromatic. When chewed, saffron tinges the mouth and saliva yellow; and when rubbed on the moistened finger it produces an intensely orange stain.

Actions and Uses.—Seldom employed internally, principally used as a colouring and flavouring ingredient.

CROTONIS SEMINA

CROTON SEEDS

Synonyms.—Croton Tiglii Semina, Croton Beans.

Natural Order.—*Euphorbiaceæ.*

Composition.—Contains, in addition to oil, an acrid purgative principle, the chemical nature of which is still unknown.

Characters.—About the size of a coffee grain, oblong, rounded at the extremities, with two faces, the external more convex than the internal. If the shelly covering of the seeds is partially removed, they present a mottled appearance; but if entirely so, they are brownish black.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses, cathartic in obstinate constipation, and when it is necessary to effect a speedy evacuation of the contents of the intestines.

Doses.—HORSE, 30 to 60 grains.*—CATTLE, 30 to 80 grains.*—SHEEP, 5 to 15 grains.*—DOG, 3 to 10 grains.*

Modes of Application.—The seed, crushed to powder, made into a bolus, mixed with the animal's food, or diluted with linseed oil.

Preparation.—Oleum Crotonis.

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* One seed weighs about three grains.

CUMINI FRUCTUS

CUMIN FRUIT

Synonym.—Cumin seeds.

The dried fruit of *Cuminum cyminum*.

Natural Order.—*Umbelliferæ*.

Composition.—The properties of cumin depend upon a volatile oil, which is of a pale yellow colour and limpid. Its taste is very acrid, and of a disagreeable odour.

Characters.—The fruit commonly termed *cumin seed* is larger than anise, and of a light brown or greyish-yellow colour. It has some resemblance to, though it is larger than, caraway. Each mericarp has five primary ridges, which are filiform, and furnished with very fine prickles. The four secondary ridges are prominent and prickly, and under each there is one vitta. The odour of the fruit is strong and aromatic. Both in odour and taste it resembles caraway, though less agreeable.

Actions and Uses.
Doses. } Same as Anisi Fructus.
Modes of Application.

CUPRI AMMONIO-SULPHAS

AMMONIO-SULPHATE OF COPPER

Composition.—Probably $Cu (NH_3)_2 SO_4$, but not accurately known.

Mode of Preparation.—Take of—

Sulphate of Copper, in powder .	2 ounces.
Carbonate of Ammonia, in powder	3 ounces.

Rub them together in a porcelain mortar until effervescence has ceased; then roll up the product in bibulous paper, and place it on a porous brick. When dry, preserve it in a well-stoppered bottle.

Characters.— Azure-blue coloured powder; emits an ammoniacal odour, and has a styptic metallic taste.

Actions and Uses. — Tonic, stimulant, antispasmodic, astringent. Given to horses and cattle in influenza, pleuro-pneumonia, consumption, and other debilitating maladies; to dogs it is administered in chorea and other nervous complaints.

Doses.—HORSE, 1 to 2 drachms.—CATTLE, 1 to 2 drachms.—SHEEP, 5 to 20 grains.—DOG, 1 to 4 grains.

Modes of Application.—In the form of ball, or suspended in cold gruel or mucilaginous drink.

Incompatibles.—Acids; fixed alkalies.

Antidotes.—Albumen; bean or pea meal suspended in water.

CUPRI IODIDUM CUM IODO

IODIDE OF COPPER WITH IODINE

Synonym.—Improperly, Iodide of Copper.

Composition.—A mixture of cuprous iodide, Cu_2I_2, and free iodine.

Mode of Preparation.—Take of—

Iodide of Potassium	2 ounces.
Sulphate of Copper	4 ounces.
Boiling Distilled Water . . .	1½ pint.

Dissolve the sulphate of copper in one pint of the distilled water, and the iodide of potassium in the remaining half pint. Mix the solutions; collect the precipitate which forms (mixture of cuprous iodide and iodine) on a filter, wash it with distilled water, and, when dried over sulphuric acid, pulverize it, and preserve it in a stoppered bottle.

Cupric Sulphate.		Potassium Iodide.		Iodide of Copper with Iodine.		Potassium Sulphate.
$2CuSO_4$	$+$	$4KI$	$=$	$Cu_2I_2+I_2$	$+$	$2K_2SO_4$

Characters and Tests.—Light fawn-coloured powder, which changes colour by exposure to air; metallic taste. The presence of free iodine is recognised by the preparation emitting the odour peculiar to this element, and by distilled water, after having been shaken with it and filtered, giving a blue colour (starch iodide) with cold aqueous solution of starch. The presence of combined copper and iodine may be proved by dissolving the solid in nitric acid, and testing the resulting solution for these elements.

Actions and Uses.—*Internally:*—Tonic and alterative; also stimulant to the absorbents. Has been employed in the treatment of diabetes insipidus, glanders, farcy, and nasal gleet. *Externally:*—Stimulant and astringent. Applied to chronic œdematous enlargements of the legs, ill-conditioned ulcers, and in inveterate grease.

It is doubtful, however, whether the internal or external applications of this agent are attended with any greater benefits than those derived from the use, in similar cases, of sulphate of copper.

Doses.—HORSE, 1 to 2 drachms daily, combined with gentian and pimento, or some other carminative.

Modes of Application.—*Internally:*—In the form of bolus. *Externally:*—The powder, either alone or made into an ointment with 4 parts of lard.

Incompatibles.—Acids; acidulous salts; alkalies and their carbonates; lime water; vegetable astringents.

CUPRI SUBACETAS

SUBACETATE OF COPPER

Synonyms.—Copper Subacetate; Diacetate of Copper; Ærugo; Verdigris.

Composition.—The blue variety chiefly consists of diacetate, $Cu(C_2H_3O_2)_2 . CuO$; the green variety contains, in addition to this compound, variable quantities of the sesqui- and tribasic copper acetates.

Mode of Preparation.—Plates of copper are subjected for several weeks to the united action of atmospheric oxygen and acetic acid. Sometimes the acid is derived from refuse grape husks undergoing the acetous fermentation; at others, cloths soaked in vinegar are arranged alternately with the plates of copper. When a sufficiency of the salt has formed, it is scraped off from any copper that may have remained unacted upon.

Characters and Tests.—Coarse masses or powder, either of a rich blue colour (blue verdigris or of a pale bluish-green colour (green verdigris). Styptic and metallic taste. Partially soluble in water, completely dissolved by hydrochloric acid. Evolves an acetous odour, which is increased on the application of heat or of strong sulphuric acid, showing the compound to be an acetate. Boiled with water and a few drops of acetic acid and filtered, a solution is obtained which furnishes a maroon-red precipitate (cupric ferrocyanide) with solution of potassium ferrocyanide, indicating the presence of copper.

Actions and Uses.
Doses.
Modes of Application. } Same as Cupri Sulphas.
Incompatibles.
Antidotes.

Preparations. — Linimentum Cupri Subacetatis; Unguentum Cupri Subacetatis.

CUPRI SULPHAS

SULPHATE OF COPPER

Synonyms.—Cupric Sulphate; Blue Vitriol; Blue Stone;

Composition.—$CuSO_4 . 5Aq$.

Mode of Preparation.—Scraps of metallic copper are heated in a current of air so as to convert them superficially into cupric oxide, CuO, which forms in flakes and is known in commerce as "copper scales." The oxide thus produced, digested with dilute sulphuric acid, is converted into sulphate.* By filtration and evaporation the salt is obtained in the crystalline state.

$$1. \quad \overset{\text{Copper.}}{2Cu} + \overset{\text{Oxygen.}}{O_2} = \overset{\text{Cupric Oxide.}}{2CuO}$$

$$2. \quad \overset{\substack{\text{Cupric}\\ \text{Oxide.}}}{CuO} + \overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{H_2SO_4} = \overset{\substack{\text{Cupric}\\ \text{Sulphate.}}}{CuSO_4} + \overset{\text{Water.}}{H_2O}$$

Characters and Tests.—Blue crystalline salt, in oblique prisms, soluble in water, forming a pale blue solution which strongly reddens blue litmus. The aqueous solution gives with barium chloride a white precipitate (barium sulphate), insoluble in hydrochloric acid, showing the salt to be a sulphate; and with potassium ferrocyanide a maroon-red precipitate, indicating the presence of copper (cupric ferro-

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* Cupric sulphate is also prepared by boiling concentrated sulphuric acid with metallic copper, when the following decomposition takes place:

$$\overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{2H_2SO_4} + \overset{\text{Copper.}}{Cu} = \overset{\substack{\text{Cupric}\\ \text{Sulphate.}}}{CuSO_4} + \overset{\substack{\text{Sulphurous}\\ \text{Anhydride.}}}{SO_2} + \overset{\text{Water.}}{2H_2O}$$

cyanide. If an aqueous solution of the salt be mixed with twice its volume of chlorine water, to peroxidize any iron that may be present, and solution of ammonia be added, the precipitate (cupric hydrate) formed by the first addition of the ammonia will be dissolved by a further and sufficient addition of the alkali, and a violet blue solution (copper ammonio-sulphate) will be produced, leaving nothing undissolved unless iron be present, in which case a reddish-brown precipitate will be left.

Actions and Uses.—*Internally*:—In large doses, irritant poison; in medicinal doses, astringent and tonic. Given in debility, scrofula, dysentery, obstinate diarrhœa, glanders, and farcy; also, combined or alternated with Liquor Ammoniæ or Ammoniæ Carbonas, in purpura, typhoid fever, and other debilitating disorders. Likewise administered as an emetic to the dog. *Externally*:—Stimulant, astringent, styptic, mild escharotic, detergent. Applied to phagedenic ulcers, *e.g.* in canker, thrush, and foot-rot, also to farcy buds; sometimes a weak solution is injected up the vessels or into the frontal or maxillary sinuses in ulcerated conditions of the Schneiderian membranes; to the skin in scurvy; to arrest hæmorrhages; as a collyrium in chronic ophthalmia.

Doses.—*Tonic and Astringent*:—HORSE, 1 to 2 drachms.—CATTLE, 1 to 3 drachms.—SHEEP, 20 to 30 grains.—PIG, 5 to 10 grains.—DOG, 1 to 3 grains.

Modes of Application.—*Internally*:—As a tonic and astringent, in the form of Massa Cupri Sulphatis, or suspended in gruel or linseed tea. As an emetic, dissolved in warm water. *Externally*:—In the state of powder; Liquor Cupri Sulphatis; Liquor Cupri Sulphatis composita; Linimentum Cupri Sulphatis.

Incompatibles.—Alkalies; alkaline carbonates; vegetable astringents.

Antidotes.—Albumen; milk; bean or pea meal suspended in water; mucilaginous drinks.

Preparations.—Linimentum Cupri Sulphatis; Liquor Cupri Sulphatis; Liquor Cupri Sulphatis composita; Massa Cupri Sulphatis.

CUSSO

KOUSSO

The flowering pannicles of *Brayera anthelmintica*, gathered before the seeds are quite ripe, dried in the sun, and reduced to coarse powder. Imported from Abyssinia.

Natural Order.—*Rosaceæ.*

Composition.—Contains two varieties of tannin, a bitter acrid and a tasteless resin, a fixed and a volatile oil, a crystalline body termed kwoseine, chlorophyll, sugar, gum, &c.

Characters and Tests.—The branches of flowers are of a greenish-yellow colour, the edges of the petals having a purplish hue; balsamic odour, when freshly opened, compared by Pereira to the combined odour of tea, hops, and senna leaves; slightly acrid and unpleasant taste. On the addition of a ferric salt to an infusion or decoction of kousso a dark green colour develops.

Actions and Uses.—Anthelmintic, especially for tænia.

Doses.—Horse, ½ to 1 pound.—Dog, 2 to 6 drachms.

Mode of Application.—In the form of Infusum Cusso.

Preparation.—Infusum Cusso.

DECOCTUM TABACI

DECOCTION OF TOBACCO

Take of—

Tobacco	1 ounce.
Water	1 pint.

Boil the water with the tobacco for a few seconds (for ten minutes, if the time will permit), strain, and add cold water to the strained liquid until it measures two pints.

Use.—Antidote to Nux Vomica; also to Strychnia and its preparations.

Doses.—HORSE, 1 to 3 pints.—CATTLE, 1 to 3 pints.—SHEEP, 5 to 15 fluid ounces.—PIG, 5 to 15 fluid ounces.—DOG, 2 to 5 fluid ounces.

Should the spasms continue after the administration of the tobacco, repeat the dose, at intervals to be determined by the effect produced, until complete muscular relaxation ensues. The effects of an overdose of tobacco may be counteracted by the exhibition of diffusible stimulants.

DIGITALINUM

DIGITALIN

Synonyms.—Digitalin.

The difficultly crystallizable sedative principle of *Digitalis purpurea.* It consists of carbon, hydrogen, and oxygen, but its formula has not yet been established. Too expensive for veterinary use.

DIGITALIS FOLIA

DIGITALIS LEAF

The dried leaf of *Digitalis purpurea*, Purple Foxglove.

Natural Order.—*Scrophulariaceæ.*

Composition.—Contains a neutral active principle, termed digitalin. See Digitalinum.

Mode of Preparation.—The leaves are gathered from the wild indigenous plant in June and July, when about two thirds of the flowers are expanded, and dried by the heat of a stove in a dark place.

Characters.—Ovate-lanceolate, shortly petiolate, rugose, downy, crenate. Bright green colour, which is paler on the under than on the upper surface; scarce any odour; acrid and nauseous taste.

Actions and Uses.—*Internally*:—In large doses, irritant and sedative poison; in medicinal doses, sedative and diuretic. Liable to accumulate in the system and irritate the intestines; its action should, therefore, be carefully watched. Chiefly given as a sedative in the secondary stages of inflammatory affections, functional diseases of the heart, and chronic rheumatism; also recommended in pneumonia and chronic cough. Prescribed as a diuretic, either alone or in combination with nitrate of potash, in dropsical complaints. *Externally*:—Irritant, diuretic, sedative, anodyne. Occasionally employed as a collyrium in ophthalmia.

Doses.—Horse, 3 grains to 1 drachm.—Cattle, ½ to 1 drachm.—Sheep, 5 to 15 grains.—Pig, 2 to 10 grains.—Dog, 1 to 3 grains.

Modes of Application.—*Internally*:—The powdered leaf made into a ball; Extractum Digitalis. For coughs, Massa Digitalis composita. *Externally*:—Infusum Digitalis.

Incompatibles.—Sulphate and chloride of iron, the acetates of lead, and the preparations of cinchona bark.

Antidotes.—Empty the alimentary canal, and apply stimulants internally and externally.

Preparations.—Extractum Digitalis; Massa Digitalis composita.

EMPLASTRUM PICIS

PITCH PLASTER

Take of—

Burgundy Pitch		20 ounces.
Resin Yellow Wax	of each	2¼ ounces.
Olive Oil		1½ fluid ounce.
Water		1 fluid ounce.

Add the oil and the water to the Burgundy pitch, resin, and wax, previously melted together; then constantly stirring, evaporate to a proper consistency.

Use.—Adhesive to wounds when spread on leather.

ENEMA ALOES

ENEMA ALOES

Take of—

Aloes	4 drachms.
Carbonate of Potassium	30 grains.
Warm Mucilage of Starch or Gruel	1 pint.

Mix and rub together.

ENEMA ASSAFŒTIDÆ

ENEMA OF ASSAFŒTIDA

Take of—

Assafœtida	2½ drachms.
Warm Water	1 pint.

ENEMA MAGNESIÆ SULPHATIS

ENEMA OF SULPHATE OF MAGNESIA

Take of—

Sulphate of Magnesia	2 ounces.
Linseed or Castor oil	2 fluid ounces.
Mucilage of Starch or Gruel	1 pint.

Dissolve the sulphate of magnesia in the mucilage of starch or gruel, add the oil, and mix.

ENEMA OPII

ENEMA OF OPIUM

Take of—

Tincture of Opium	5 fluid drachms.
Warm Mucilage of Starch or Gruel	1 pint.

Mix.

ENEMA TABACI

ENEMA OF TOBACCO

Take of—

Leaf Tobacco . .	1 drachm.
Boiling water . .	20 fluid ounces (1 pint).

Infuse in a covered vessel for half an hour, and strain.

ENEMA TEREBINTHINÆ

ENEMA OF TURPENTINE

Take of—

Oil of Turpentine	2 fluid ounces.
Mucilage of Starch or Gruel	1 pint.

ERGOTA

ERGOT

Synonym.—Ergot of Rye.

Natural Order.—*Fungi.*

The sclerotium (compact mycelium or spawn) of a fungus, *Claviceps purpurea,* produced within the paleæ of the common rye, *Secale cereale.*

Composition.—Complicated, and not well known. Its parturient effects are attributed to a body of undetermined composition, and to which the name ergotin has been given.

Characters.—Subtriangular, curved with a longitudinal furrow on the concave side, obtuse at the ends; from one third of an inch to an inch and a half in length; violet-brown colour supeaficially, pinkish internally; solid, frangible, fracture short; faint odour, which may be increased by trituration with solution of potash.

Actions and Uses.—*Internally*:—In large doses, irritant poison; in medicinal doses, styptic in hæmorrhages of the lungs, kidneys, and other organs, but principally used as a parturient, *i. e.* to excite the uterus to contract and expel its contents during parturition. Its efficacy in this respect is, however, doubtful on the lower animals. *Externally*:—Employed as a styptic, to arrest hæmorrhages, *e. g.* of the vagina, uterus, &c.

Doses.—HORSE, 2 to 4 drachms.—CATTLE, 2 to 4 drachms.—SHEEP, 20 to 40 grains.—PIG, 15 to 30 grains.—DOG, 2 to 10 grains.

Modes of Application.—*Internally*:—The powder, in ale or porter, with a carminative; Extractum Ergotæ liquidum,* Infusum Ergotæ, Tincturæ Ergotæ. *Externally*:—Extractum Ergotæ Liquidum; Infusum Ergotæ; Tinctura Ergotæ.

Preparations.—Extractum Ergotæ liquidum;* Infusum Ergotæ; Tinctura Ergotæ.

EUPHORBIUM

EUPHORBIUM

Synonym.—Gum euphorbium.

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* Until we are in possession of more complete and accurate information respecting the therapeutic actions of the oil, said to be the only poisonous principle of ergot, Extractum Ergotæ liquidum, which is freed from this constituent, should be preferred to its other preparation as a parturient.

An acrid resin, obtained from *Euphorbia officinarum*, and probably other species of euphorbia, belonging to the natural order *Euphorbiaceæ*.

Characters.—Irregular, slightly friable tears, usually pierced with one or two holes. These tears are almost odourless, but their dust is very irritating when applied to the mucous lining of the nose. Taste at first slight, afterwards acrid and burning. On heating, euphorbium melts, swells up imperfectly, evolves an odour like benzoic acid, takes fire, and burns with a pale flame. Alcohol, ether, and oil of turpentine are its best solvents; water only dissolves a small portion of it.

Composition.—Contains about 60 per cent. of a reddish-brown, hard, brittle resin, which is its active constituent.

Actions and Uses.—Sometimes it is employed as an errhine in chronic affections of the eyes, ears, or brain; but its local action is so violent that it can only be applied when largely diluted with starch or flour. Mixed with turpentine, Burgundy pitch, or resin, it is employed in the form of plaster, as a rubefacient, in chronic affections of the joints. Sometimes used as a vesicant.

EXTRACTUM ACONITI

EXTRACT OF ACONITE

Mode of Preparation.—Take of—

The fresh leaves and flowering tops of Aconite	112 pounds.

Bruise in a stone mortar, and press out the juice; heat it gradually to 130° F., and separate the green colouring matter by a calico filter. Heat the strained liquor to 200° F. to coagulate albumen, and filter. Evaporate the filtrate on a water-bath to the consistence of a thin syrup;

then add to it the green colouring matter previously separated, and stirring the whole together assiduously, continue the evaporation at a temperature not exceeding 104° F. until the extract is of suitable consistence for forming balls or pills.

Doses.—Horse, 10 to 15 grains.—Cattle, 15 to 30 grains.—Sheep, 2 to 5 grains.—Pig, 2 to 5 grains.—Dog ¼ to 2 grains.

Modes of Application.—In the form of bolus, or rubbed up with cold water.

EXTRACTUM BELLADONNÆ

EXTRACT OF BELLADONNA

Mode of Preparation.—Take of—

The fresh leaves and young branches of Belladonna } 112 pounds.

Bruise in a stone mortar, and press out the juice; heat it gradually to 130° F., and separate the green colouring matter by a calico filter. Heat the strained liquor to 200° F. to coagulate albumen, and filter. Evaporate the filtrate on a water-bath to the consistence of a thin syrup; then add to it the green colouring matter previously separated, and stirring the whole together assiduously, continue the evaporation at a temperature not exceeding 140° F., until the extract is of a suitable consistence for forming balls and pills.

Doses.—Horse, ½ to 1 drachm.—Cattle, ½ to 1 drachm.—Sheep, 3 to 10 grains.—Pig, 2 to 5 grains.—Dog, ½ to 3 grains.

Modes of Application.—In the form of bolus, or rubbed up with cold water.

EXTRACTUM DIGITALIS

EXTRACT OF DIGITALIS

Mode of Preparation.—Take of—

Fresh leaves of Digitalis	112 pounds.

Bruise in a stone mortar, and press out the juice; heat it gradually to 130° F. and separate the green colouring matter by a calico filter. Heat the strained liquor to 200° F. to coagulate albumen, and filter. Evaporate the filtrate on a water-bath to the consistence of a thin syrup; then add to it the green colouring matter previously separated, and, stirring the whole together assiduously, continue the evaporation at a temperature not exceeding 140° F., until the extract is of a suitable consistence for forming balls or pills.

Doses.—Horse, 5 to 10 grains.—Cattle, 5 to 10 grains.—Sheep, 1 to 5 grains.—Pig, 1 to 5 grains.—Dog, ½ to 1 grain.

Modes of Application.—In the form of bolus, or rubbed up with cold water.

EXTRACTUM ERGOTÆ LIQUIDUM

LIQUID EXTRACT OF ERGOT

Mode of Preparation. Take of—

Ergot, in coarse powder	1	pound.
Ether	1	pint, or a sufficiency.
Distilled Water	3½	pints.
Rectified Spirit	8	fluid ounces.

Shake the ether in a bottle with half a pint of the water, and after the two liquids have separated from one another on standing, decant the ether. Place the ergot in a percolator, and free it from its oil by passing the washed ether slowly through it. Remove the marc, and digest it in three pints of the water at 160° F. for twelve hours. Press out, strain, and evaporate the liquor by the heat of a water-bath to nine fluid ounces; when cold add the spirit. Allow it to stand for an hour to coagulate, then filter. The product should measure sixteen fluid ounces.

Actions and Uses.—See Ergota.

Doses.—HORSE, 1 to 4 fluid drachms.—CATTLE, 2 to 4 fluid drachms.—SHEEP, 10 to 40 minims.—PIG, 10 to 20 minims.—DOG, 2 to 10 minims.

Mode of Application.—Diluted with water.

EXTRACTUM HYOSCYAMI

EXTRACT OF HYOSCYAMUS

Mode of Preparation.—Take of—

The fresh leaves and young branches of Hyoscyamus	112 pounds.

Bruise in a stone mortar and press out the juice; heat it gradually to 130° F., and separate the green colouring matter by a calico filter. Heat the strained liquor to 200° F., and filter. Evaporate the filtrate on a water-bath to the consistence of a thin syrup; then add to it the green colouring matter previously separated, and, stirring the whole assiduously, continue the evaporation of a temperature not exceeding 140° until the extract is of a suitable consistence for forming balls or pills.

Doses.—HORSE, 1 to 2 drachms.—CATTLE, 1 to 2 drachms.

—SHEEP, 15 to 30 grains.—PIG, 10 to 20 grains.—DOG, 2 to 8 grains.

Modes of Application.—In the form of bolus, or rubbed up with cold water.

FERRI CARBONAS SACCHARATA

SACCHARATED CARBONATE OF IRON

Composition.—Ferrous carbonate (carbonate of iron), $FeCO_3$, mixed with ferric oxide, Fe_2O_3, and sugar, the carbonate forming at least fifty-seven per cent. of the mixture.

Mode of Preparation.—Take of—

Sulphate of Iron	2 ounces.
Carbonate of Ammonia	1¼ ounce.
Boiling Distilled Water	2 gallons.
Refined Sugar	1 ounce.

Dissolve the sulphate of iron and the carbonate of ammonia separately in half a gallon of the water, and mix the two solutions with brisk stirring in a deep cylindrical vessel, which is then to be covered as accurately as possible. Set the mixture by for twenty-four hours, and from the precipitate (carbonate of iron) which has subsided separate the supernatant liquid by a siphon. Pour on the remainder of the water, stir well, and after subsidence again remove the clear liquid. Collect the resulting carbonate on a calico filter, and, having first subjected it to expression, rub it with the sugar in a porcelain mortar. Finally, dry the mixture at a temperature not exceeding 212° F.

Ferrous Sulphate.		Ammonium Carbonate.		Ferrous Carbonate (Carbonate of Iron).		Ammonium Sulphate.
$FeSO_4$	$+$	$(NH_4)_2CO_3$	$=$	$FeCO_3$	$+$	$(NH_4)_2SO_4$

The sugar is added to prevent the absorption of atmospheric oxygen, the loss of carbonic anhydride, and the consequent conversion of the ferrous carbonate into ferric oxide.[*]

Characters and Tests.—Small coherent lumps of a grey colour, with a sweet very feeble chalybeate taste. Dissolves with effervescence in warm hydrochloric acid diluted with half its volume of water, indicating that it contains a carbonate, and the solution gives but a very slight precipitate with barium chloride, showing its almost total freedom from sulphate; with potassium ferrocyanide the solution gives a pale blue precipitate, which, on exposure to air, changes to a dark blue, indicating the presence of a ferrous salt.

Actions and Uses.
Doses. } Same as Ferri Sulphas.

Modes of Application.—In bolus, pill, or suspended in some mucilaginous drink.

Incompatibles.—Acids; acidulous salts; vegetable astringents.

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[*] When commercial or pharmaceutical carbonate of ammonia is dissolved in water, the ammonium carbamate which it contains is rapidly converted into normal ammonium carbonate $(NH_4)_2CO_3$, thus:—

$$\begin{array}{ccccc} \text{Ammonium} & & & & \text{Ammonium} \\ \text{Carbamate.} & & \text{Water.} & & \text{Carbonate.} \\ NH_4(NH_2CO_2) & + & H_2O & = & (NH_4)_2CO_3 \end{array}$$

This ammonium carbonate decomposes the ferrous sulphate in the manner indicated above, while the ammonium-hydrogen carbonate in the commercial salt acts upon ferrous sulphate in the way explained by the following equation:

$$\begin{array}{ccccccccc} \text{Ferrous} & & \text{Ammonium-hydrogen} & & \text{Ferrous} & & \text{Ammonium} & & \\ \text{Sulphate.} & & \text{Carbonate.} & & \text{Carbonate.} & & \text{Sulphate.} & & \\ FeSO_4 & + & 2NH_4HCO_3 & = & FeCO_3 & + & (NH_4)_2SO_4 & + & \\ & & & & \text{Carbonic} & & & & \\ & & \text{Water.} & & \text{Anhydride.} & & & & \\ & & H_2O & + & CO_2 & & & & \end{array}$$

FERRI IODIDUM

IODIDE OF IRON

Composition.—Ferrous iodide, FeI_2, with about eighteen per cent. of water of crystallization and a little ferric oxide.

Mode of Preparation.—Take of—

Fine Iron Wire	1¼ ounce.
Iodine	3 ounces.
Distilled Water	15 fluid ounces.

Put the iodine, iron, and twelve ounces of the water into a flask, and, having heated the mixture gently for about ten minutes, raise the heat and boil till the froth becomes white. Pass the solution as quickly as possible through a wetted calico filter into a dish of polished iron, washing the filter with the remainder of the water, and boil down until a drop of the solution taken out on the end of an iron wire solidifies on cooling. The liquid should now be poured out on a porcelain dish, and, as soon as it has solidified, should be broken into fragments, and enclosed in a well-stoppered bottle.

In this process iron and iodine combined chemically, thus:—

$$\begin{array}{ccccc} \text{Iron.} & & \text{Iodine.} & & \begin{array}{c}\text{Ferrous} \\ \text{Iodide (Iodide} \\ \text{of Iron).}\end{array} \\ Fe & + & I_2 & = & FeI_2 \end{array}$$

The iodide acquires five molecules of water of crystallization, and becomes $FeI_2 . 5Aq$.

Characters and Tests.—Crystalline; green, with a tinge of brown; inodorous; deliquescent; almost entirely soluble in water, forming a slightly green solution, which gradually deposits a rust-coloured sediment (ferric oxide), and acquires a red colour. Its aqueous solution gives a copious blue precipitate with potassium ferricyanide, showing the presence of iron. Mixed with mucilage or starch, it acquires a blue colour on the addition of a minute quantity of solution of chlorine or nitric acid, indicating that the compound is an iodide.

Actions and Uses.—Tonic, hematinic, alterative, astringent. Given in *diabetes insipidus* and nasal gleet.

Doses.—Horse, ½ to 2 drachms.—Cattle, 1 to 2 drachms.—Sheep, 15 to 30 grains.—Pig, 10 to 20 grains. —Dog, 1 to 8 grains.

Modes of Application.—In bolus, pill, or solution in water.

Incompatibles.—Acids; acidulous salts; alkalies; alkaline carbonates; lime water; vegetable astringents.

FERRI PEROXIDUM HUMIDUM

MOIST PEROXIDE OF IRON

Synonyms.—Moist Ferric Hydrate; Ferri Peroxidum Hydratum; Moist Hydrated Peroxide of Iron.

Composition.—Ferric hydrate, $Fe_2(HO)_6$, with about eighty-six per cent. of uncombined water.

Mode of Preparation.—Take of—

Solution of Persulphate of Iron .	4 fluid ounces.
Solution of Soda	33 fluid ounces.
Distilled Water	A sufficiency.

Mix the solution of persulphate of iron with a pint of the distilled water, and add this gradually to the solution of soda, stirring constantly and briskly. Let the mixture stand for two hours, stirring it occasionally, then put it on a calico filter, and, when the liquid has drained away, wash the precipitate (moist peroxide of iron) with distilled water until the filtrate ceases to give a precipitate with barium chloride, which shows that the precipitate is freed from sulphate. Lastly, enclose the precipitate, without drying it, in a stoppered bottle from which evaporation cannot take place. This preparation, when used, should be recently made.

Ferric Sulphate.		Sodium Hydrate.		Ferric Hydrate (Moist Peroxide of Iron).		Sodium Sulphate.
Fe_23SO_4	$+$	$6NaHO$	$=$	$Fe_2(HO)_6$	$+$	$3Na_2SO_4$

Characters and Tests.—Soft pasty mass, of a reddish-brown colour. Dissolves readily in diluted hydrochloric acid without the aid of heat, and the solution gives a copious blue precipitate (ferric ferrocyanide, Prussian blue, $Fe_4 Fcy_3$) with potassium ferrocyanide, but none with potassium ferridcyanide. A little of it dried at 212° F. until it ceases to lose weight gives off water of hydration when heated to dull redness in a test-tube.

Actions and Uses.—Antidote to poisoning by arsenic, in which case it forms an insoluble and inert ferrous sub-arseniate.

Doses.—The administration should be frequently repeated until at least twelve times the supposed quantity of the arsenic has been given, or until it appears to have been effective in allaying the action of the poison.

Modes of Application.—Mixed with water or some demulcent drink.

FERRI SULPHAS

SULPHATE OF IRON

Synonyms.—Ferrous Sulphate; Protosulphate of Iron; Green Vitriol; Copperas.

Composition.—$FeSO_4 . 7Aq$.

Mode of Preparation.—Take of—

Iron Wire	4 ounces.
Sulphuric Acid	4 fluid ounces.
Distilled Water	1½ pint.

Pour the water on the iron placed in a porcelain dish, add the sulphuric acid, and, when the disengagement of hydrogen has nearly ceased, boil for ten minutes. Filter through paper, and after the lapse of twenty-four hours separate the crystals (sulphate of iron) which have deposited from the solution. Dry these on filter paper placed on porous bricks, and preserve them in a stoppered bottle.

Iron.		Sulphuric Acid.		Ferrous Sulphate (Sulphate of Iron).		Hydrogen.
Fe	+	H_2SO_4	=	$FeSO_4$	+	H_2

In the act of crystallizing, seven molecules of water are taken up by the salt, forming the compound $FeSO_4 . 7Aq$.*

Characters and Tests.—Oblique, rhombic, prismatic crystals; pale greenish-blue colour and styptic taste; soluble in water, insoluble in rectified spirit. Its aqueous solution

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* This salt is most extensively obtained by the oxidation of iron pyrites (iron disulphide), FeS_2.

Iron. Disulphide.		Oxygen (from the air).		Water.		Ferrous Sulphate.		Sulphuric Acid.
FeS_2	+	O_7	+	H_2O	=	$FeSO_4$	+	H_2SO_4

gives a white precipitate (barium sulphate) with barium chloride, a dark blue one (ferrous ferricyanide, *Turnbull's Blue*, Fe_3Fdcy*) with potassium ferridcyanide, and a nearly white or light blue precipitate (ferrous ferrocyanide, Fe_2Fcy†) with potassium ferrocyanide. It should give no precipitate with hydrosulphuric acid, showing its freedom from lead and other metals precipitable by this reagent.

Actions and Uses.—*Internally:*—In excessive doses, irritant poison; in medicinal doses, astringent, tonic, and hæmatinic. Given in, and during convalescence from, debilitating diseases; in dysentery, internal hæmorrhages, hæmaturia, diabetes, chorea, and occasionally in epilepsy. *Externally:*—Astringent to ulcers, to check capillary hæmorrhages, and to diminish profuse discharges.

Doses.—HORSE, 1 to 2 drachms.—CATTLE, 2 to 3 drachms. —SHEEP, 15 to 30 grains.—PIG, 10 to 20 grains.—DOG, 1 to 10 grains.

Modes of Application.—*Internally:*—Massa Ferri Sulphatis, or dissolved in water. *Externally:*—In powder or strong aqueous solution.

Incompatibles.—Alkalies; alkaline carbonates; lime-water; vegetable astringents.

Preparation.—Massa Ferri Sulphatis.

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* Fdcy is the symbol for ferricyanogen, a compound radical, having the formula $Fe_2(CN)_{12}$, and sometimes written Fe_2Cy_{12}.

† Fcy is the symbol for ferrocyanogen, a compound radical, having the formula $Fe(CN)_6$, and sometimes written $FeCy_6$.

FERRUM

IRON

Wrought iron, in the form of wire or nails, free from oxide.

Composition.—An element; symbol Fe.

Preparations.—Ferri Carbonas Saccharata; Ferri Iodidum; Ferri Peroxidum humidum; Ferri Sulphas; Liquor Ferri Perchloridi fortior; Liquor Ferri Persulphatis.

FILIX MAS

MALE FERN

Synonyms.—Male Shield Fern; Fern Root.

The dried rhizome, with the bases of the foot-stalks and portions of the root-fibres of *Aspidium* or *Nephrodium Filix mas*, belonging to the natural order *Filices*, collected in summer. Indigenous.

Composition.—According to Bock the root contains 0·04 *per cent.* of a volatile oil, to which are attributed its anthelmintic properties. It also contains 4 *per cent.* of resin, a green fatty oil, and tannic acid.

Mode of Preparation.—The rhizome should be dug up in summer, cleared of root-fibres, &c., but not washed, and dried quickly and thoroughly in the open air, in the shade, or in a hot-air press at a temperature not above 140° F.; the tufts and those parts of the root-stock which are greenish internally are alone to be kept; they should be reduced to powder immediately, and preserved in well-stoppered bottles; the stock should be renewed annually, as in two years the plant loses its medicinal qualities.

Characters.—Tufted, scaly, greenish brown; powder greenish yellow, with a disagreeable odour, and a nauseous, bitter, somewhat astringent taste.

Action and Use.—Anthelmintic for Tænia.

Doses.—Horse, 2 to 3 ounces.—Cattle, 1 to 4 drachms.

Mode of Application.—The powder made into a bolus or mixed with gruel; Extractum Filicis liquidum.*

Preparation.—Extractum Filicis liquidum.

GALBANUM

GALBANUM

A gum-resin, derived from an unascertained umbelliferous plant. Imported from India and the Levant.

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* This preparation is to be preferred to the powder, as the latter is uncertain in its action, no matter how well it may be kept.

EXTRACTUM FILICIS LIQUIDUM

LIQUID EXTRACT OF MALE FERN

Mode of Preparation.—Take of—

Fern Root, in coarse powder . .	2 pounds.
Ether	4 pints, or a sufficiency.

Mix the fern root with two pints of the ether, pack closely in a percolator, and add the remainder of the ether at intervals, until it passes through colourless. Evaporate off the ether over a water-bath, or recover it by distillation, and preserve the oily extract which remains.

Doses.—Horse, ½ to 1 ounce; Dog, ¼ to 1 drachm.

Composition.—Its medicinal properties depend upon the presence of a resinous body and a volatile oil.

Characters.—Irregular tears, about the size of a pea, usually agglutinated into masses; greenish-yellow colour, translucent, having a strong disagreeable odour, and an acrid bitter taste.

Actions and Uses.
Doses. } Similar to Ammoniacum and Assafœtida.

GALLA

GALLS

Synonyms.—Oak-galls; Nut-galls; Galls.

Excrescences formed on the young branches of the oak, *Quercus infectoria,* belonging to the natural order *Cupuliferæ,* as a consequence of the irritation produced by the puncture and deposited ova of the female of an hymenopterous insect, *Diplolepis gallæ tinctoriæ.*

Composition.—Their therapeutic properties are chiefly due to their containing about twenty-six per cent. of tannic acid, $H_3C_{27}H_{19}O_{17}$, with a trace of gallic acid, $H_3C_7H_3O_5$. Aq.

Characters.—Hard, heavy, globular bodies, varying in size from half an inch to three fourths of an inch in diameter; tuberculated on the surface, the tubercles and intervening spaces smooth; bluish-green colour superficially, yellowish white within, with a small central cavity; intensely astringent.

Actions and Uses.—*Internally and Externally:*—Astringent and styptic. Employed in same cases as Acidum Tannicum.

Doses.—Horse, 1 to 3 drachms.—Cattle, 2 to 4 drachms.

—SHEEP, 20 to 40 grains.—PIG, 10 to 20 grains—DOG, 2 to 10 grains.

Modes of Application.—*Internally:*—In the form of bolus or Tinctura Gallæ. *Externally:*—Tinctura Gallæ; Unguentum Gallæ; Unguentum Gallæ cum Opio.

Incompatibles.—Mineral acids; soluble salts of iron and lead; sulphate of copper; nitrate of silver; tartar emetic; lime-water; alkaline carbonates and bicarbonates, and many vegetable agents containing alkaloids.

Preparations.—Acidum Gallicum; Acidum Tannicum; Tinctura Gallæ; Unguentum Gallæ; Unguentum Gallæ cum Opio.

GENTIANÆ RADIX

GENTIAN ROOT

The dried root of *Gentiana lutea.* Collected in the mountain districts of central and southern Europe.

Natural Order.—*Gentianaceæ.*

Composition.—Gentian root consists for the most part of a volatile, odorous, and butyraceous oily matter, a bitter crystalline body consisting of an acid (gentisic acid), and a bitter crystalline principle (gentianite), with gum, sugar, pectin, wax, caoutchouc, a yellow colouring matter, and woody fibre.

Characters.—From half an inch to one inch in thickness, several inches in length, often twisted, much wrinkled or marked with close transverse rings; brown externally, yellow internally; tough and spongy; taste at first sweetish, but afterwards very bitter.

Actions and Uses.—*Internally:*—Tonic and stomachic.

Externally:—Occasionally employed as a mild excitant and antiseptic.

Doses.—Horse, 2 to 4 drachms.—Cattle, 2 to 4 drachms.—Sheep, 1 to 2 drachms.—Pig, ½ to 1 drachm.—Dog, 10 to 20 grains.

Modes of Application.—In the form of bolus; Infusum Gentianæ compositum; Tinctura Gentianæ composita.

Preparations.—Infusum Gentianæ compositum; Tinctura Gentianæ composita.

GLYCERINUM

GLYCERIN

Synonym.—Propenyl Alcohol.

Composition.—$C_3H_8O_3$, or $C_3H_5(HO)_3$, with a small amount of water.

Mode of Preparation.—Price's glycerin is preferred to that of other makers. Molten fat is resolved by the action of high-pressure steam, at a temperature of from 500° to 600° F., into glycerin and a mixture of stearic, palmitic, and oleic acids; the former dissolves in the water formed by the condensation of the steam, while the latter floats on the surface of the solution of glycerin. After the removal of the fatty acids the glycerin is deprived of nearly the whole of its water by evaporation.

Characters.—Clear colourless fluid, oily to the touch. Sp. gr. 1·25. Slight odour; sweet taste; freely soluble in water and in alcohol. Strongly heated, it decomposes and evolves intensely irritating vapours (acrolein, C_3H_4O).

Actions and Uses.—Chiefly employed externally as an emollient in skin affections accompanied by dryness and irritation; to excoriations, cracked heels, burns, scalds, and freshly blistered surfaces. When used to allay irritability it may be advantageously mixed with an equal bulk of Liquor Plumbi Subacetatis. Also employed as a vehicle for many medicines, and, in consequence of its non-drying properties, it is often added to masses to prevent their hardening.

GLYCERINUM ACIDI CARBOLICI

GLYCERIN OF CARBOLIC ACID

Take of—

Carbolic Acid	1 part.
Glycerin	4 parts.

Rub together in a mortar until the acid is dissolved.

Use.—Astringent and stimulant to indolent wounds and ulcers, also to abrasions, sore backs, cracked heels, &c.

GOSSYPIUM

COTTON WOOL

The carded hairs of the seeds of various species of *Gossypium*.

Natural Order.—*Malvaceæ.*

Composition.—Nearly pure cellulose or woody fibre, $C_6H_{10}O_5$.

Uses.—To blistered surfaces, as in burns, scalds, erysipelas, &c.; and to wounds for the purpose of protecting them from the irritating effects of the atmosphere.

Preparations.—Collodium; Collodium Flexile.

HYDRARGYRI IODIDUM RUBRUM

RED IODIDE OF MERCURY

Synonyms.—Mercuric Iodide; Biniodide of Mercury.

Composition.—HgI_2.

Mode of Preparation.—Take of—

Perchloride of Mercury . . .	4 ounces.
Iodide of Potassium	5 ounces.
Boiling Distilled Water . . .	2 quarts.

Dissolve the perchloride of mercury in three pints, and the iodide of potassium in the remainder, of the water, and mix the solutions. When the temperature has fallen to that of the atmosphere, decant the supernatant liquor from the precipitate (red iodide of mercury), and, having collected the latter on a filter, wash it twice with cold distilled water, and dry it at a temperature not exceeding 212° F.

Mercuric Chloride.		Potassium Iodide.		Mercuric Iodide (Red Iodide of Mercury).		Potassium Chloride.
$HgCl_2$	$+$	$2KI$	$=$	HgI_2	$+$	$2KCl$

Characters and Tests.—Cystalline powder of a vermilion colour, becoming yellow when gently heated over a lamp on a sheet of paper; almost insoluble in water, dissolves sparingly in alcohol, but freely in ether or in an aqueous solution of iodide of potassium. Should be completely soluble in ether and entirely volatilized at a high temperature. Heated in a dry test-tube with dry sodium carbonate, a sublimate, consisting of bluish-white liquid metallic globules, is obtained, indicating the presence of mercury; the residue remaining in the bottom of the test-tube dissolved in water, acidified with nitric acid, and mixed with solution of starch, produces a blue colour (starch iodide), proving the compound to be an iodide.

Actions and Uses.—*Externally*:—In the form of Unguentum Hydrargyri Iodidi rubri, as a stimulant detergent and caustic to unhealthy sores and farcy ulcers; also as a counter-irritant to sore throats, splints, curbs, spavins, enlarged bursæ, thickening of the integument, and similar affections.

Preparation.—Unguentum Hydrargyri Iodidi rubri.

HYDRARGYRI OXIDUM RUBRUM

RED OXIDE OF MERCURY

Synonyms.—Mercuric Oxide; Red Precipitate.

Composition.—HgO.

Mode of Preparation.—Take of—

Mercury, by weight . . .	8 ounces.
Nitric Acid	4½ fluid ounces.
Water	2 fluid ounces.

Dissolve half the mercury in the nitric acid diluted with the water, evaporate the solution to dryness, and, with the dry salt (mercuric nitrate) thus obtained, triturate the remainder of the mercury until the two are uniformly blended together. Heat the mixture in a porcelain dish, with repeated stirring, until acid vapours (nitric peroxide) cease to be evolved, and, when cold, enclose the product (red oxide of mercury) in a bottle. The chemical changes in the foregoing process may be regarded as taking place in two stages, thus:—

$$1.\quad \overset{\text{Mercury.}}{3\text{Hg}} + \overset{\substack{\text{Nitric}\\\text{Acid.}}}{8\text{HNO}_3} = \overset{\substack{\text{Mercuric}\\\text{Nitrate.}}}{3\text{Hg}(\text{NO}_3)_2} + \overset{\substack{\text{Nitric}\\\text{Oxide.}}}{2\text{NO}} + \overset{\text{Water.}}{4\text{H}_2\text{O}}$$

$$2.\quad \overset{\substack{\text{Mercuric}\\\text{Nitrate.}}}{\text{Hg}(\text{NO}_3)_2} + \overset{\text{Mercury.}}{\text{Hg}} = \overset{\substack{\text{Mercuric}\\\text{Oxide}\\\text{(Red Oxide}\\\text{of Mercury).}}}{2\text{HgO}} + \overset{\substack{\text{Nitric}\\\text{Peroxide.}}}{2\text{NO}_2{}^{*}}$$

Characters and Tests.—Orange-red powder, readily dissolved by hydrochloric acid, yielding a solution of mercuric chloride, which gives a yellow precipitate (yellow mercuric oxide) with excess of caustic potash, and a white precipitate (mercuric-ammonium chloride, NH_2HgCl) with ammonia. Strongly heated in a test-tube, it should be entirely converted into mercury, which condenses in the upper and cooler parts of the tube, and into oxygen, which may be recognised by its rekindling an incandescent match. During the heating of the oxide no red vapours should be evolved, showing its freedom from nitrate.

Actions and Uses.—*Externally:*—As an escharotic, the powder is sprinkled over wounds; in the form of Unguentum Hydrargyri Oxidi rubri it is used as a stimulant and detergent.

Preparation.—Unguentum Hydrargyri Oxidi rubri.

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* Mercuric nitrate heated alone furnishes mercuric oxide, nitric peroxide, and free oxygen [$Hg(NO_3)_2 = HgO + 2NO_2 + O$], the latter product escaping into the air and becoming wasted. In the 'British Pharmacopœia' process, above described, this oxygen combines with the additional mercury, and is thereby economised.

HYDRARGYRI PERCHLORIDUM

PERCHLORIDE OF MERCURY

Synonyms.—Mercuric Chloride; Bichloride of Mercury; Corrosive Sublimate; Mercury Ball.

Composition.—$HgCl_2$.

Mode of Preparation.—Take of—

Sulphate of Mercury, dried . .	20 ounces.
Chloride of Sodium, dried . .	16 ounces.
Black Oxide of Manganese* . .	1 ounce.

Reduce the sulphate of mercury and the chloride of sodium separately to fine powder, and, having mixed them and the oxide of manganese thoroughly by trituration in a mortar, put the mixture into a subliming apparatus, and apply sufficient heat to cause the vapours of perchloride of mercury to rise into the less heated part of the apparatus .

Mercuric Sulphate.		Sodium Chloride.		Mercuric Chloride (Perchloride of Mercury).		Sodium Sulphate.
$HgSO_4$	+	$2NaCl$	=	$HgCl_2$	+	Na_2SO_4

Characters and Tests.—Heavy colourless masses of prismatic crystals, possessing a highly acrid metallic taste; more soluble in alcohol, and still more so in ether, than in water. Heated, it liquefies, and completely sublimes without decomposing. Its aqueous solution gives a yellow precipitate (yellow mercuric oxide) with caustic potash, a white precipitate (mercuric-ammonium chloride, NH_2HgCl)

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* If the mercuric sulphate (sulphate of mercury) employed be free from mercurous sulphate, the addition of the oxide of manganese may be dispensed with, as in that case the production of calomel need not be apprehended.

with ammonia, and a curdy white precipitate (silver chloride) with silver nitrate; the first two reactions are indicative of the salt being a mercuric compound, and the third reaction shows that it is a chloride.

Actions and Uses.—*Internally:*—In large doses, irritant and corrosive poison; seldom administered medicinally, although, in doses of from five to ten grains, it has been recommended in glanders and farcy. *Externally:*—Caustic to indolent ulcers, fistulæ, and bony tumours; as a stimulant in scab, mange, and similar affections; also as an antiparasitic for the destruction of pediculi, acari, &c.

Modes of Application.—As a caustic, the powder; Liquor Hydrargyri Perchloridi; Unguentum Hydrargyri Perchloridi. As a stimulant and antiparasitic, Spiritus Hydrargyri Perchloridi compositus.

Antidotes.—Albumen; wheaten flour; bean or pea meal; gruel or other demulcent drinks, followed by vegetable astringents.

Preparations.—Liquor Hydrargyri Perchloridi; Spiritus Hydrargyri Perchloridi compositus; Unguentum Hydrargyri Perchloridi.

HYDRARGYRI SUBCHLORIDUM

SUBCHLORIDE OF MERCURY

Synonyms.—Mercurous Chloride; Protochloride of Mercury; Calomel.

Composition.—$HgCl$, or probably Hg_2Cl_2.

Mode of Preparation.—Take of—

Sulphate of Mercury . . .	10 ounces.
Mercury	7 ounces.

Chloride of Sodium, dried .	5 ounces.
Boiling Distilled Water . .	A sufficiency.

Moisten the sulphate of mercury with some of the water, and rub it and the mercury together until globules are no longer visible; add the chloride of sodium, and thoroughly mix the whole by continued trituration. Sublime by a suitable apparatus into a chamber of such a size that the calomel, instead of adhering to its sides as a crystalline crust, shall fall as a fine powder on its floor. Wash this powder with boiling distilled water until the washings cease to be darkened by a drop of ammonium sulphide, showing that any corrosive sublimate that may have been formed in the above process has been removed from the calomel.

$$\begin{array}{ccccccccc} \text{Mercuric Sulphate.} & & \text{Mercury.} & & \text{Sodium Chloride.} & & \text{Mercurous Chloride (Calomel).} & & \text{Sodium Sulphate.} \\ HgSO_4 & + & Hg & + & 2NaCl & = & 2HgCl & + & Na_2SO_4 \end{array}$$

Characters and Tests.—Dull white, heavy, and nearly tasteless powder, rendered yellowish by trituration in a mortar; insoluble in water, spirit, and ether. Digested with solution of potash, it becomes black (mercurous oxide), indicating that it is a mercurous compound; and the clear solution obtained by decantation, or filtering the mixture, acidulated with nitric acid, gives a copious white precipitate (silver chloride) with silver nitrate, showing it to be a chloride. Should be entirely volatilized by a sufficient heat, indicating the absence of fixed impurity; and ether, which has been shaken with it in a bottle, should leave no residue on evaporation, proving the calomel to be free from corrosive sublimate.

Actions and Uses.—*Internally:*—In continued doses it produces ptyalism; in excessive doses, irritant poison; in medicinal doses, cathartic, stimulant, sedative, resolvent, cholagogue, diuretic, sialogogue, and, on some animals, diaphoretic, alterative, antiphlogistic, anthelmintic. Given in diseases of the liver; combined with opium or belladonna, in enteritis and dysentery; in febrile affections, in inflammation of serous membranes, in typhus inflammation, in lingering inflammation of the intestines, and in chronic glandular enlargements. As a cathartic it should never be given alone to the horse, as its action on this animal is both uncertain and violent. Calomel is seldom given to cattle or sheep, except in cases of obstinate dysentery.

Doses.—HORSE, 20 to 60 grains.—CATTLE, 10 to 30 grains.—SHEEP, 4 to 8 grains.—PIG, 1 to 4 grains.—DOG, 1 to 4 grains.

Modes of Application.—In the form of bolus, or suspended in some mucilaginous drink.

Incompatibles.—Lime-water; alkalies; alkaline carbonates.

Antidotes.—Albumen; wheaten flour; bean- or pea-meal.

Preparation.—Lotio Hydrargyri nigra.

HYDRARGYRI SULPHAS

SULPHATE OF MERCURY

Synonyms.—Mercuric Sulphate; Persulphate of Mercury.

Composition.—$HgSO_4$.

Mode of Preparation.—Take of—

Mercury, by weight . . .	20 ounces.
Strong Sulphuric Acid . .	12 fluid ounces.

Heat the mercury with the sulphuric acid in a porcelain vessel, stirring constantly until the metal disappears; then continue the heat until a dry white salt (sulphate of mercury) remains.

$$\overset{\text{Mercury.}}{Hg} + \overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{2H_2SO_4} = \overset{\substack{\text{Mercuric}\\ \text{Sulphate}\\ \text{(Sulphate of}\\ \text{Mercury).}}}{HgSO_4} + \overset{\substack{\text{Sulphurous}\\ \text{Anhydride.}}}{SO_2} + \overset{\text{Water.}}{2H_2O}$$

Or (in two stages)—

$$1.\quad \overset{\text{Mercury.}}{Hg} + \overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{H_2SO_4} = \overset{\substack{\text{Mercuric}\\ \text{Oxide.}}}{HgO} + \overset{\substack{\text{Sulphurous}\\ \text{Anhydride.}}}{SO_2} + \overset{\text{Water.}}{H_2O}$$

$$2.\quad \overset{\substack{\text{Mercuric}\\ \text{Oxide.}}}{HgO} + \overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{H_2SO_4} = \overset{\substack{\text{Mercuric}\\ \text{Sulphate.}}}{HgSO_4} + \overset{\text{Water.}}{H_2O}$$

Characters.—White crystalline heavy powder, rendered yellow (mercuric oxysulphate, $HgSO_4 . 2HgO$) by affusion of water. Entirely volatilized by heat.

Uses.—In the preparation of Hydrargyri Perchloridum and Hydrargyri Subchloridum.

HYDRARGYRUM

MERCURY

Synonym.—Quicksilver.

Composition.—An element, symbol Hg.

Mode of Preparation.—Although it is met with in the native metallic state in the quicksilver mines of South America, it is chiefly imported into this country from Spain, Illyria, Bavaria, and several other parts of the world, where it is extracted from a native sulphide termed cinnabar (mercuric sulphide). In order that the cinnabar may be made to yield the mercury it contains, it is either roasted or heated with lime or iron, in a suitable distillatory apparatus. The following equation represents the changes which take place in the simpler of these processes :—

$$\overset{\text{Mercuric Sulphide.}}{\mathrm{HgS}} + \overset{\text{Iron.}}{\mathrm{Fe}} = \overset{\text{Mercury.}}{\mathrm{Hg}} + \overset{\text{Ferrous Sulphide.}}{\mathrm{FeS}}$$

The mercury distils over, and the ferrous sulphide remains in the retort.

Characters and Tests.—A metal, liquid at ordinary temperature, brilliantly lustrous, and easily divisible into spherical globules. Volatilizes at a heat below that of visible redness, and should leave no residue.

Preparations.—

Hydrargyri Iodum rubrum.
„ Oxidum rubrum.
„ Perchloridi.
„ Subchloridi.
„ Sulphas.
Hydrargyrum Ammoniatum
„ cum Cretâ.
Lotio Hydrargyri flava.
„ Hydrargyri nigra.
Liquor Hydrargyri Nitratis acidus.
Liquor Hydrargyri Perchloridi.
Pilula Hydrargyri Subchloridi et Ferri.
Unguentum Hydrargyri.
„ Hydrargyri Ammoniati.
Unguentum Hydrargyri compositum.
Unguentum Hydrargyri Nitratis.
Unguentum Hydrargyri Oxidi rubri.
Unguentum Hydrargyri Iodidi rubri.

HYDRARGYRUM AMMONIATUM

AMMONIATED MERCURY

Synonyms.—Hydrargyri Ammonio-Chloridum ; Hydrargyri Precipitatum album ; Mercuric-ammonium Chloride ; Chloride of Mercuric-ammonium ; Amidochloride of Mercury ; White Precipitate.

Composition.—Various views have been adopted respecting the constitution of this body; it may, however, be regarded as the ammonium chloride, in which two atoms of hydrogen are replaced by a bivalent atom of mercury; its formula then becomes NH_2HgCl.

Mode of Preparation.—Take of—

Perchloride of Mercury . .	3 ounces.
Solution of Ammonia . .	4 fluid ounces.
Distilled Water	3 pints.

Dissolve the perchloride of mercury in the water, with the aid of a moderate heat. Mix the solution with the ammonia, constantly stirring. Collect the precipitate (ammoniated mercury) on a filter, and wash it well with cold distilled water until the liquid which passes through ceases to give a precipitate when dropped into a solution of silver nitrate acidulated by nitric acid. Lastly, dry the product at a temperature not exceeding 212° F.

$$\begin{array}{ccccccc} \text{Mercuric} & & & & \text{Mercuric-ammonium Chloride} & & \text{Ammonium} \\ \text{Chloride.} & & \text{Ammonia.} & & \text{(Ammoniated Mercury).} & & \text{Chloride.} \\ HgCl_2 & + & 2NH_4HO & = & NH_2HgCl & + & NH_4Cl \\ & & & & \text{Water.} & & \\ & & & + & 2H_2O & & \end{array}$$

Characters and Tests.—Opaque white powder, on which cold water, alcohol, and ether have no action. Digested with caustic potash, it evolves ammonia and acquires a pale yellow colour (mercuric oxide). The clear liquid obtained by filtering this mixture, after being acidulated with nitric acid, gives a white precipitate (silver chloride) with silver nitrate. Boiled with stannous chloride, it becomes grey and affords globules of metallic mercury. Entirely volatilizes at a heat under redness.

Actions and Uses.—*Internally:*—Irritant poison. *Externally:*—The powder, or an ointment consisting of one part of white precipitate and eight parts of lard, is used for the destruction of pediculi and acari.

HYDRARGYRUM CUM CRETA

MERCURY WITH CHALK

Synonym.—Grey powder.

Composition.—An intimate mixture of metallic mercury, mercurous oxide, and calcic carbonate. The proportion of mercurous oxide, which is probably the active ingredient of this preparation, to the other constituents has not yet been ascertained, but it is most likely variable.

Mode of Preparation.—Take of—

Mercury, by weight	1 ounce.
Prepared Chalk	2 ounces.

Rub the mercury and chalk together in a porcelain mortar until metallic globules cease to be visible to the naked eye, and the mixture acquires a uniform grey colour.

Characters and Tests.—Powder of a light grey colour, free from grittiness, insoluble in water, partly dissolved with effervescence by dilute hydrochloric acid, leaving the mercury in a finely divided state. The solution formed with hydrochloric acid is not precipitated by the addition of stannous chloride, showing that the preparation contains no mercuric oxide.

Actions and Uses.—Chiefly given to the dog as an alterative.

Doses.—Dog, from 3 to 10 grains.

Mode of Application.—In the form of pill or powder.

Incompatibles.—Acids and acidulous salts.

HYOSCYAMI FOLIA

HYOSCYAMUS LEAVES

Synonym.—Henbane Leaves.

Natural Order.—*Atropaceæ.*

The fresh leaves, with the branches to which they are attached, of *Hyoscyamus niger;* also the leaves separated from the branches and carefully dried, gathered from wild or cultivated British biennial plants, when about two thirds of the flowers are expanded.

Characters.—Leaves sinuated, clammy, and hairy. The fresh herb has a strong unpleasant odour, and a slightly acrid taste, which nearly disappear on drying. The fresh juice dropped into the eye dilates the pupil.

Preparations.—Extractum Hyoscyami; Tinctura Hyoscyami.

INFUSUM CALUMBÆ

INFUSION OF CALUMBA

Take of—

Calumba, in coarse powder . . .	1 ounce.
Cold Water	1 pint.

Macerate one hour, and strain.

Doses.—Horse, 6 to 8 fluid ounces; Cattle, 8 to 10 fluid ounces; Sheep, 2 to 4 fluid ounces; Pig, 1 to 2 fluid ounces; Dog, ½ to 1 fluid ounce.

INFUSUM CATECHU

INFUSION OF CATECHU

Take of—

Pale Catechu, in coarse powder	6 drachms.
Cinnamon Bark, bruised	1 drachm.
Boiling Distilled water	1 pint.

Infuse in a covered vessel for half an hour, and strain.

Doses.—Horse, 4 to 6 fluid ounces.—Cattle, 4 to 6 fluid ounces.—Sheep, 1 to 2 fluid ounces.—Pig, 1 to 2 fluid ounces.—Dog, ¼ to 1 fluid ounce.

INFUSUM CINCHONÆ FLAVÆ

INFUSION OF YELLOW CINCHONA

Take of—

Yellow Cinchona Bark, in coarse powder	1 ounce.
Boiling Distilled Water	1 pint.

Infuse in a covered vessel for two hours, and strain.

Doses.—Horse, 4 to 6 fluid ounces.—Cattle, 4 to 6 fluid ounces.—Sheep, 1 to 2 fluid ounces.—Pig, 1 to 2 fluid ounces.—Dog, ¼ to 1 fluid ounce.

INFUSUM ERGOTÆ

INFUSION OF ERGOT

Take of—

Ergot, in coarse powder	½ ounce.
Boiling Distilled Water	1 pint.

Infuse in a covered vessel for half an hour, and strain.

Doses.—Horse, 6 to 8 fluid ounces.—Cattle, 8 to 10 fluid ounces.—Sheep, 4 to 6 fluid ounces.—Pig, 2 to 4 fluid ounces.—Dog, ½ to 1 fluid ounce.

INFUSUM GENTIANÆ COMPOSITUM

COMPOUND INFUSION OF GENTIAN

Take of—

Gentian Root, sliced	4 drachms.
Pimento Berries, bruised . .	2 drachms.
Boiling Distilled Water . . .	1 pint.

Infuse in a covered vessel for four hours, and strain.

Doses.—Horse, 6 to 8 fluid ounces.—Cattle, 8 to 10 fluid ounces.—Sheep, 2 to 4 fluid ounces,—Pig, 1 to 2 fluid ounces.—Dog, ½ to 1 fluid ounce.

INFUSUM LINI

INFUSION OF LINSEED

Synonym.—Linseed Tea.

Take of—

Linseed, crushed	1 ounce.
Boiling Distilled Water . . .	1 pint.

Infuse in a covered vessel for four hours, and strain.

Doses.—*Ad libitum.*

INFUSUM TABACI

INFUSION OF TOBACCO

Take of—

Tobacco, in leaf or shreds . . .	1 drachm.
Boiling Distilled Water	1 pint.

Infuse in a covered vessel for one hour, and strain.

Use.—*Externally:*—As a parasiticide.

IODUM

IODINE

Composition.—An elementary body, having the symbol I.

Mode of Preparation.—Sea-weed is collected, dried, and burned; the semi-vitreous ash (kelp) which remains is lixiviated with water, and the aqueous solution of alkaline sulphates, carbonates, chlorides, and iodides thus formed is evaporated. Sodium sulphate and carbonate, and potassium and sodium chloride, crystallize out and leave a "mother liquor" rich in iodides, chiefly sodium iodide. This "mother liquor" is mixed with sulphuric acid and manganese peroxide and subjected to distillation.

$$\overset{\substack{\text{Sodium}\\ \text{Iodide.}}}{2NaI} + \overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{2H_2SO_4} + \overset{\substack{\text{Manganese}\\ \text{Peroxide.}}}{MnO_2} = \overset{\text{Iodine.}}{I_2} + \overset{\substack{\text{Sodium}\\ \text{Sulphate.}}}{Na_2SO_4}$$

$$+ \overset{\substack{\text{Manganese}\\ \text{Sulphate.}}}{MnSO_4} + \overset{\text{Water.}}{2H_2O}$$

The iodine distils over and is collected in a series of glass receivers; the other products remain in the retort.

Iodine thus obtained is purified by being re-sublimed; it should be preserved in a well-stoppered bottle.

Characters and Tests.—Laminar crystals, of a peculiar odour, bluish-black colour, and metallic lustre, which, when heated, yield a beautiful violet-coloured vapour; very sparingly soluble in water, but freely dissolved by alcohol, ether, and a solution of potassium iodide. Its aqueous solution strikes a deep blue colour (starch iodide) with cold solution of starch. It should sublime without leaving any residue, and the portion which first comes over should not include any pungent, slender, colourless prisms (cyanogen iodide). If shaken in a dry bottle, iodine will not adhere to the sides if it be free from moisture.

Actions and Uses.—*Internally*:—In excessive doses, irritant and corrosive poison; in medicinal doses, tonic, alterative, deobstruent, resolvent; if exhibited for a sufficient length of time, it occasions debility and gives rise to a disturbance of the constitution termed *iodism*. Given as a tonic and alterative in inflammatory affections after the subsidence of fever and acute inflammation; as a resolvent and stimulant in ascites, hydrothorax, and similar complaints in which effusion is present; as a deobstruent in chronic enlargement of the liver, and the mammary and other glands, also in indurations of mucous membranes. Likewise given in rheumatism, in scrofulous diseases, and to arrest the secretion of urine in diabetes insipidus. Recommended as an antidote to poisoning by mercury and the vegetable alkaloids. *Externally*:—Stimulant, counter-irritant, resolvent in sore throat, bursal enlargements, swellings of joints, thickening of the periosteum, tumours of various kinds, strains of tendons; also in scab, mange, ringworm, mallenders, and sallenders, and other skin diseases.

Doses.—HORSE, 10 to 20 grains.—CATTLE, 20 to 30 grains.—SHEEP, 5 to 10 grains.—PIG, 2 to 5 grains.—DOG, 1 to 2 grains.

Modes of Application.—*Internally*:—In the form of bolus, preferably as Liquor Iodi, sometimes as Tinctura Iodi. *Externally*:—Linimentum Iodi; Tinctura Iodi; Unguentum Iodi; Unguentum Sulphuris Iodidi.

Incompatibles.—Ammonia; metallic salts; mineral acids; vegetable alkaloids.

Antidotes.—Emetics, when applicable, aided by demulcent drinks; starch, flour, and similar amylaceous meals, suspended in water. If the starch-containing remedies be boiled with water and cooled before administration, their efficiency will be increased.

Preparations.—

Ferri Iodidum.
Hydrargyri Iodidum rubrum.
Linimentum Iodi.
Potassii Iodidum.
Sulphuris Iodidum.
Tinctura Iodi.
Unguentum Iodi.
Unguentum Sulphuris Iodidi.

IPECACUANHA

IPECACUANHA

The dried root of *Cephaëlis Ipecacuanha,* powdered. Imported from Brazil.

Natural Order.—*Cinchonaceæ.*

Composition.—Its medicinal activity is ascribed to an alkaloid, *emetina.* The formula of this body has not yet been well established.

Characters.—Pieces three or four inches long, about the diameter of a small quill, contorted and irregularly annulated. Colour, brown of various shades. It consists of two parts—the cortical or active portion, which is brittle, and a slender, tough, white, woody centre. Powder, pale brown, with a faint nauseous odour and a somewhat acrid and bitter taste.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses, emetic, and sedative; also mildly cathartic. Chiefly used in dog practice as an emetic, nauseant, and sudorific.*

Doses.—As an emetic to the DOG; from 15 to 30 grains are given in tepid water, either alone or with 1 grain of tartar emetic.

Preparations.—Pulvis Ipecacuanha compositus.

JALAPA

JALAP

The dried tubercles of *Exogonium purga*, powdered. Imported from Mexico, from a town of which, Xalapa, its name is derived.

Natural Order.—*Convolvulaceæ.*

Composition.—Its cathartic principle is a resinous body, soluble in alcohol, insoluble in water.

Characters.—Varying from the size of a nut to that of an orange, ovoid, the larger tubercles frequently incised, covered with a thin, brown, wrinkled cuticle; presenting, when cut, a yellowish-grey colour, with dark brown concentric circles.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses, it is sometimes given to sheep and pigs, but usually to the dog, as a cathartic and vermifuge.

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* As a nauseant and sudorific, Pulvis Ipecacuanhæ compositus (factitious Dover's Power) is employed.

Doses.—Pig, 1 to 2 drachms.—Dog, ½ to 3 drachms.

Modes of Application.—In the form of bolus, or rubbed up with some mucilaginous drink.

KAMALA

KAMALA

Synonym.—Kamela.

Minute glands, which are found adhering to the capsules of *Rottlera tinctoria;* imported from India.

Natural Order.—*Euphorbiaceæ.*

Composition.—Unknown.

Characters and Tests.—A fine, granular, mobile, orange-red powder; scarcely miscible with water, but soluble for the most part in alcohol and ether, forming red-coloured solutions. The residue insoluble in ether should consist principally of tufted hairs and be free from sand and earthy impurities.

Actions and Uses.—Purgative and anthelmintic for tænia.

Doses.—Horse, 1 to 2 ounces.—Dog, 1 to 3 drachms.

Modes of Application.—In the form of bolus or suspended in gruel.

KINO

KINO

The inspissated juice obtained from incisions made in the trunk of *Pterocarpus Marsupium.* Imported from Malabar.

Natural Order.—*Leguminosæ.*

Composition.—Kino contains catechine, a peculiar kind of tannin, red gum, &c.

Characters and Tests.—Small, angular, brittle, glistening, reddish-black fragments. When entire they are opaque, but in thin laminæ are translucent and ruby-red. They are inodorous, but possess a very astringent taste. Soluble in alcohol; insoluble in ether. The mineral acids, and solutions of gelatine, tartrated antimony, acetate of lead, perchloride of iron, and nitrate of silver, produce precipitates with the watery infusion.

Actions and Uses. **Doses.** **Modes of Application.**	Same as Catechu Pallidun.

LINI FARINA

LINSEED MEAL

Linseed cake, from which the greater part of the oil has been expressed, reduced to powder.

Natural Order.—*Linaceæ.*

Composition.—Chiefly valuable in medicine on account of the mucilage it contains.

Preparations.—Cataplasma Calx Chlorinata; Cataplasma Carbonis; Cataplasma Lini; Cataplasma Sinapis.

LINI SEMINA

LINSEED

The seeds of the common flax, *Linum usitatissimum.* Cultivated in Britain.

Natural Order.—*Linaceæ.*

Composition.—Its value in medicine depends upon the mucilage it contains, and the oil that is obtained from it by expression.

Characters.—Small, oval, pointed, flat, with acute edges; smooth, shining, brown externally, yellowish-white internally; mucilaginous oily taste.

Preparations.—Infusum Lini; Lini Farina; Oleum Lini.

LINIMENTUM ACIDI CARBOLICI

LINIMENT OF CARBOLIC ACID

This is synonymous with Glycerinum Acidi Carbolici, which see.

LINIMENTUM ACONITI

LINIMENT OF ACONITE

Take of—

Aconite Root, in coarse powder . .	20 ounces.
Camphor	1 ounce.
Rectified Spirit	a sufficiency.

Moisten the root for three days, then pack in a percolator, and pour sufficient rectified spirit upon it to produce a pint.

Use.—Applied with a camel-hair pencil alone, or mixed, in equal proportions, with soap liniment or compound camphor liniment, and rubbed on the part, relieves acute neuralgia.

LINIMENTUM AMMONIÆ

LINIMENT OF AMMONIA

Take of—

Solution of Ammonia	1 fluid ounce.
Olive Oil	2 fluid ounces.

Mix together with agitation.

Use.—Counter-irritant in sore throat, rheumatism, sprains, chronic tumours, bronchitis, &c.

LINIMENTUM AMMONIÆ COMPOSITUM

COMPOUND LINIMENT OF AMMONIA

Take of—

Solution of Ammonia	Equal parts.
Olive Oil	
Oil of Turpentine	

Shake the solution of ammonia and the olive oil together, then add the oil of turpentine, and shake again until the ingredients are thoroughly mixed.

Use.—Same as Linimentum Ammoniæ, but more active.

LINIMENTUM CALCIS

LINIMENT OF LIME

Synonym.—Carron Oil.

Take of—

Solution of Lime	Of each, equal parts.
Olive Oil*	

Mix together with agitation.

Use.—Applied to burns and scalds.

LINIMENTUM CAMPHORÆ

LINIMENT OF CAMPHOR

Take of—

Camphor	1 ounce.
Olive Oil†	2 fluid ounces.

Dissolve the camphor in the oil.

Uses.—A stimulating embrocation for deep-seated inflammations, glandular swellings, &c.

LINIMENTUM CAMPHORÆ COMPOSITUM

COMPOUND LINIMENT OF CAMPHOR

Synonym.—White Oil.

Take of—

Camphor	1 ounce.
Rectified Spirit	4 fluid ounces.
Olive Oil	1 pint.
Solution of Ammonia . . . : .	2 fluid ounces.

Dissolve the camphor in the spirit, shake the olive oil with the solution of ammonia, and mix the whole together, so as to form a liniment.

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* Sometimes one part oil of turpentine is added to this liniment to increase its activity.

† Oil of turpentine is sometimes added to increase the activity of this liniment.

Uses.—Same as Linimentum Camphoræ and Linimentum Ammoniæ, but more active.

LINIMENTUM CANTHARIDIS

LINIMENT OF CANTHARIDES

Synonyms.—Oleum Cantharidis; Oil of Cantharides.

Take of—

Cantharides, in powder	1 part.
Olive-oil	8 parts.

Digest in a water-bath for two or more hours, and strain.

Use.—Vesicant.

LINIMENTUM CREASOTI COMPOSITUM

COMPOUND LINIMENT OF CREASOTE

Take of—

Creasote	2 parts.
Oil of Turpentine	4 parts.
Olive Oil	4 parts.

Mix together with agitation.

Uses.—Similar to those of Glycerinum Acidi Carbolici.

LINIMENTUM CROTONIS

LINIMENT OF CROTON OIL

Take of—

Croton Oil	1 part.
Oil of Turpentine, or Soap Liniment	6 to 8 parts.

Mixed together with agitation.

Use.—Vesicant.

LININENTUM CUPRI SUBACETATIS

LINIMENT OF SUBACETATE OF COPPER[*]

Synonyms.—Linimentum Æruginis; Liniment of Verdigris.

Take of—

Subacetate of Copper,[†] in fine powder	9 ounces.
Alum, in fine powder.	6 ounces
Treacle	1½ pound.

Boil and stir together until the mixture assumes a brown colour.

Uses.—Erodent and digestive in canker, thrush, and foot-rot.

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[*] A mixture of one part of subacetate of copper and eight parts of lard is generally used instead of this liniment.

[†] The less expensive sulphate of copper may be substituted for the subacetate in this preparation.

LINIMENTUM CUPRI SULPHATIS

LINIMENT OF SULPHATE OF COPPER.

Take of—

Sulphate of Copper, in fine powder	1 part.
Tar or Treacle	4 parts.

Mix, stir, and heat together until the mass assumes a reddish-brown colour.

Uses.—Same as Linimentum Cupri Subacetatis

LINIMENTUM HYDRARGYRI

COMPOUND LINIMENT OF MERCURY

Take of—

Ointment of Mercury	3 ounces
Solution of Ammonia	3 ounces.
Liniment of Camphor	3 ounces.

Melt the ointment in the liniment, add the ammonia, and shake them together.

Uses.—A stimulating liniment, applied to indolent ulcers &c.

LINIMENTUM IODI COMPOSITUM

COMPOUND LINIMENT OF IODINE

Synonym.—Linimentum Iodi, B. P.

Take of—

Iodine	1¼ ounce.

Iodide of Potassium . . .	½ ounce.
Camphor	¼ ounce.
Rectified Spirit	10 fluid ounces.

Dissolve the iodine, iodide of potassium, and camphor in the spirit.

Uses.—Stimulant and deobstruent to bursæ and enlarged glands.

LINIMENTUM PICIS LIQUIDÆ

LINIMENT OF TAR

Take of—

Oil of Tar	Of each, equal parts.
Rape Oil	

Mix together with agitation.

Use.—In skin affections.

LINIMENTUM OLEI PICIS LIQUIDÆ COMPOSITUM

COMPOUND LINIMENT OF TAR

Take of—

Oil of Turpentine	Of each equal parts.
Oil of Tar	
Rape Oil	

Mix together with agitation.

Use.—In skin affections.

LINIMENTUM OPII

LINIMENT OF OPIUM

Take of—

Tincture of Opium, by measure	1 part.
Compound Liniment of Soap, by measure	3 parts.

Mix.

Use.—Anodyne to local pains and sprains; in rheumatism, &c.

LINIMENTUM PLUMBI SUBACETATIS

LINIMENT OF SUBACETATE OF LEAD

Take of—

Solution of Subacetate of Lead	1 part.
Olive Oil	4 parts.

Mix.

Uses.—Sedative to excoriated surfaces, or after the application of a blister or the actual cautery.

LINIMENTUM SAPONIS COMPOSITUM

COMPOUND LINIMENT OF SOAP

Synonym.—Opodeldoc.

Take of—

Soft Soap	4 ounces.
Camphor	1 ounce.
Proof Spirit	2 pints.
Solution of Ammonia	½ pint.

Dissolve the soap and the camphor in the spirit, then add the solution of ammonia, and filter for use.

Uses.—Stimulant and anodyne, after the subsidence of local inflammation; to sprains and bruises; to tumours, slight attacks of sore throat, &c.

LINIMENTUM TEREBINTHINÆ

LINIMENT OF TURPENTINE

Take of—

Soft Soap	2 ounces.
Camphor	1 ounce.
Oil of Turpentine	16 fluid ounces.

Dissolve the camphor in the oil of turpentine, then add the soap, rubbing them together until they are thoroughly mixed.

Uses.—Same as Linimentum Saponis compositum.

LINIMENTUM TEREBINTHINÆ COMPOSITUM

COMPOUND LINIMENT OF TURPENTINE

Take of—

Croton Oil	2 fluid drachms.
Oil of Turpentine	4 fluid ounces.
Olive or Rape Oil	25 fluid ounces.

Mix.

Uses.—Rubefacient and vesicant.

LIQUOR ACIDI CARBOLICI

SOLUTION OF CARBOLIC ACID

Take of—

Carbolic Acid	1 ounce.
Water	40 ounces.

Shake well together.

Uses.—Lotion for extensive wounds; after operations, as a styptic, and as an antiseptic to prevent the decomposition of any blood that may accumulate from hæmorrhage after the wound has been sewn up. For the destruction of pediculi and acari, it is applied as hot as the animal can bear it.

LIQUOR ALOES

SOLUTION OF ALOES

Take of—

Barbadoes Aloes,* in small pieces	1 pound.
Distilled Water	5 pints.
Proof Spirit	16 fluid ounces.

Digest the aloes and water together over a water-bath until the former is dissolved, remove the solution from the water-bath, add the spirit, and thoroughly mix.

Uses.—Laxative and cathartic.

Doses.—Horse, 2 to 4 fluid ounces.—Cattle, 2 to 6 fluid ounces.—Sheep, 1 to 2 fluid ounces.

* Spiked aloes is frequently substituted for Barbadoes aloes in this preparation, on account of the more ready solubility of the former.

LIQUOR ALOES ET SODÆ CARBONATIS

SOLUTION OF ALOES AND CARBONATE OF SODA

Take of—

Barbadoes Aloes, in small pieces	1 pound.
Carbonate of Soda	½ pound.
Water	1 gallon.

Dissolve, with the aid of a water-bath, the aloes in seven pints of the water, and, when cold, pour off the clear solution. Dissolve the carbonate of soda in the remaining pint of water, previously made hot; allow the solution to cool, add it to the solution of aloes, and preserve the mixture in a well-corked or stoppered bottle.

Uses.—Laxative and cathartic.

Doses.—Horse, 8 to 16 fluid ounces.—Cattle, 8 to 16 fluid ounces.—Sheep, 2 to 6 fluid ounces.

LIQUOR ALUMNIS

SOLUTION OF ALUM

Take of—

Alum in Powder	1 ounce.
Distilled Water.	16 fluid ounces.

Dissolve the alum in the water.

Uses.—*Externally*:—As an astringent or styptic.

LIQUOR AMMONIÆ

SOLUTION OF AMMONIA

Mode of Preparation.—Take of—

Strong Solution of Ammonia . . .	1 pint.
Distilled Water	2 pints.

Mix, and preserve in a stoppered bottle.

Tests.— Sp. gr. 0·959. Other characters similar to Liquor Ammoniæ fortior.

Actions and Uses.—*Internally*:—In excessive doses and undiluted, irritant and narcotic poison; in medicinal doses, antacid, stimulant, antispasmodic, resolvent, and diuretic. Given in tympanites, hoven, and in many inflammatory and debilitating complaints. *Externally*: — Counter-irritant, rubefacient, vesicant.

Doses.—HORSE, ½ to 1 fluid ounce.—CATTLE, 1 to 4 fluid ounces.—SHEEP, 1 to three fluid drachms.—PIG, 1 to 3 fluid drachms.—DOG, 5 to 20 minims.

Modes of Application.—*Internally*:—Diluted with from twenty to thirty parts of water, with cold gruel, or other mucilaginous drink. As a stimulant, sometimes administered to horses and cattle in the form of Mistura Ammoniæ; in indigestion and colic, one fluid ounce of Liquor Ammoniæ mixed with three to five drachms of aloes, rubbed down in water, may be given to the same animals. *Externally*:—In the form of Linimentum Ammoniæ, Linimentum Ammoniæ compositum, Linimentum Camphoræ compositum.

Incompatibles.—Acids and metallic salts, except those of potassium, sodium, barium, and calcium.

Antidotes.—Dilute vinegar, and solutions of the non-poisonous vegetable acids.

Preparations.—Linimentum Ammoniæ, Linimentum Ammoniæ compositum, Linimentum Camphoræ compositum.

LIQUOR AMMONIÆ ACETATIS

SOLUTION OF ACETATE OF AMMONIA

Synonym.—Mindererus's Spirit.

Composition.—Ammonium Acetate (acetate of ammonia) $(NH_4)C_2H_3O_2$, dissolved in water.

Mode of Preparation.—Take of—

Acetic Acid	10 fluid ounces.
Carbonate of Ammonia.	3¾ ounces, or a sufficiency.
Distilled Water	2½ pints.

Powder the carbonate of ammonia, and add it gradually to the acetic acid until a neutral solution is formed, then add the water.

Assuming, for simplicity's sake, the carbonate of ammonia to have the formula $(NH_4)_2CO_3$, the following equation expresses the decomposition which takes place during its conversion into acetate:

$$\overset{\text{Ammonium Carbonate.}}{(NH_4)_2CO_3} + \overset{\text{Acetic Acid.}}{2HC_2H_3O_2} = \overset{\text{Ammonium Acetate (Acetate of Ammonia).}}{2(NH_4)C_2H_3O_2} + \overset{\text{Carbonic Anhydride.}}{CO_2} + \overset{\text{Water.}}{H_2O}$$

Characters and Tests.—Transparent, colourless, and nearly odourless liquid, having a cooling, saline, and unpleasant taste. Mixed with solution of potash it evolves ammoniacal gas, and warmed with strong sulphuric acid it emits the vapour of acetic acid. The ammoniacal gas and the vapour of acetic acid may each be recognised by their peculiar odour.

Actions and Uses.—*Internally*:—Mild stimulant, diaphoretic, and diuretic. Given as a febrifuge in inflammation of the lungs, influenza, and other febrile affections, usually in combination with Potassæ Nitras, Spiritus Ætheris Nitrosi, or with Spiritus Ætheris Nitrosi and Extractum Belladonnæ. *Externally*:—As a discutient.

Doses.—HORSE, 4 to 8 fluid ounces.—CATTLE, 4 to 8 fluid ounces.—SHEEP, 1 to 3 fluid ounces.—PIG, 1 to 3 fluid ounces.—DOG, 2 to 6 drachms.

Mode of Application.—*Internally*:—Diluted with about three times of water. *Externally*:—Lotio Ammoniæ Acetatis.

Incompatibles.—Acids; fixed alkalies and their carbonates; lime-water; nitrate of silver; acetate of lead; and metallic sulphates.

LIQUOR AMMONIÆ FORTIOR

STRONG SOLUTION OF AMMONIA

Composition.—Water holding in solution 32·5 per cent. of ammoniacal gas, NH_3.

Mode of Preparation.—A mixture of calcium hydrate and coarsely powdered ammonium chloride is heated in an iron bottle connected by a tube with a series of Woulf's bottles. The first two Woulf's bottles are empty. Two retain impurities that may pass over from the iron bottle, and the others contain water, by which the ammoniacal gas, set free from the ammonium choride, is absorbed. The aqueous solution of ammonia thus formed constitutes Liquor Ammoniæ fortior.

$$\overset{\text{Ammonium Chloride.}}{2(NH_4)Cl} + \overset{\text{Calcium Hydrate.}}{Ca(HO)_2} = \overset{\text{Ammoniacal Gas.}}{2NH_3} + \overset{\text{Calcium Chloride.}}{CaCl_2} + \overset{\text{Water.}}{2H_2O}$$

Characters and Tests.—Colourless liquid, with a characteristic and very pungent odour and strong alkaline reaction. Sp. gr. 0·891.

When diluted with four times its volume of distilled water, it should give no precipitate with lime-water, showing the absence of ammonium carbonate; no precipitate with ammonium oxalate, indicating the absence of calcium; no precipitate with ammonium sulphide, showing the absence of iron; and no precipitate with copper ammonio-sulphate, proving the absence of ammonium sulphide. Liquor Ammoniæ fortior acidified with nitric acid should not be rendered turbid by silver nitrate, indicating the absence of chlorine, or by barium chloride, showing that it is free from sulphate.*

Preparations.—Linimentum Camphoræ compositum; Liquor Ammoniæ; Spiritus Ammoniæ aromaticus.

LIQUOR ANTIMONII CHLORIDI

SOLUTION OF CHLORIDE OF ANTIMONY

Synonyms.—Solution of antimonious Chloride; Solution of Terchloride of Antimony; Butter of Antimony.

Composition.—Water holding in solution antimonous chloride, $SbCl_3$.

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* When the boracic acid of Tuscany is saturated with soda, considerable quantities of pure ammonia are evolved. The Liquor Ammoniæ and Ammoniæ Carbonas obtained from this source are known in commerce as 'volcanic ammonia,' and are to be preferred to the same preparations procured in any other way on account of their greater purity.

Mode of Preparation.—Take of—

Black Antimony (Native Antimonous Sulphide), in powder	1 pound.
Hydrochloric Acid	4 pints.

Place the black antimony in a porcelain vessel, pour upon it the hydrochloric acid, and, constantly stirring, apply to the mixture, beneath a flue with a good draught, a gentle heat, which must be gradually augmented as the evolution of sulphuretted hydrogen gas begins to slacken, until the liquid boils. Maintain it at this temperature for fifteen minutes; then remove the vessel from the fire, and filter the liquid (solution of antimonous chloride) through calico into another vessel, returning what passes through first, that a perfectly clear solution may be obtained. Evaporate this to the bulk of two pints, and preserve it in a stoppered bottle.

$$\begin{array}{ccccccc} \text{Antimonous Sulphide.} & & \text{Hydrochloric Acid.} & & \text{Antimonous Chloride.} & & \text{Sulphuretted Hydrogen.} \\ Sb_2S_3 & + & 6HCl & = & 2SbCl_3 & + & 3H_2S \end{array}$$

Characters and Tests.—Heavy liquid, sp. gr. 1·47, usually of a yellowish-red colour.* A little of it dropped into water gives a white precipitate (antimonous oxychloride, $2SbCl_3\ 5Sb_2O_3$), and the filtered solution gives a white precipitate (silver chloride) with silver nitrate, indicating the presence of chlorine. If the white precipitate formed by water be treated with sulphuretted hydrogen, it becomes orange-coloured (antimonous sulphide, Sb_2S_3).

Actions and Uses.—*Internally*:—Irritant and corrosive poison. *Externally*:—Either alone or mixed with four parts of Tinctura Myrrhæ composita, it is employed as a caustic in the treatment of fistulæ, thrush, canker, luxuriant granulations, foul and foot-rot. It occasions but little pain.

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* The colour is usually darker than here described, owing to the presence of ferric chloride, derived from the iron vessels used in its preparation.

Antidotes.—Chalk; magnesia or its carbonates; and demulcent drinks.

Preparation.—Antimonii Oxidum.

LIQUOR ANTIMONII TARTARATIS

SOLUTION OF TARTARATED ANTIMONY

Take of—

Tartarated Antimony, in powder	1 ounce.
Distilled Water	4 to 8 ounces.

Dissolve the tartarated antimony in the water.

Use.—Counter-irritant in deep-seated inflammations and chronic rheumatism of the joints.

LIQUOR ARGENTI NITRATIS

SOLUTION OF NITRATE OF SILVER

Take of—

Nitrate of Silver	10 to 15 grains.
Distilled Water	1 fluid ounce.

Dissolve the nitrate of silver in the water.

Uses.—As an excitant to wounds, &c. One or two drops of the solution, mixed with an equal bulk of water, are sometimes introduced into the eye to remove opacity of the cornea.

LIQUOR ARSENICALIS

ARSENICAL SOLUTION

Synonyms.—Liquor Potassæ Arsenitis; Fowler's Solution.

Composition.—By some authorities it is regarded as arsenious anhydride dissolved in a solution of potassium carbonate; by others as an aqueous solution of potassium arsenite, $KAsO_2$, and carbonate. It contains an amount of arsenical compound corresponding to four grains of arsenious anhydride in one fluid ounce.

Mode of Preparation.—Take of—

Arsenious Acid, in powder Carbonate of Potash . .	of each, 80 grains.
Distilled Water	a sufficiency.

Place the arsenious acid and the carbonate of potash in a flask with ten ounces of the water, and apply heat until a clear solution is obtained. Allow this to cool, and then add as much distilled water as will make the bulk one pint.

If the former of the above views respecting the composition of this solution be correct, no decomposition takes place during its preparation; but if the latter be adopted, part of the carbonate of potash must be decomposed by the arsenious acid in the manner indicated by the following equation:—

$$\overset{\text{Potassium Carbonate.}}{K_2CO_3} + \overset{\text{Arsenious Anhydride.}}{As_2O_3} = \overset{\text{Potassium Arsenite.}}{2KAsO_2} + \overset{\text{Carbonic Anhydride.}}{CO_2}$$

Characters and Tests.—Clear, colourless liquid, alkaline to test-paper. Sp. gr. 1·009. After being acidulated with hydrochloric acid it gives, with sulphuretted hydrogen, a yellow precipitate (arsenious sulphide, As_2S_3). Soluble in ammonium carbonate, which is brightest when the arsenical solution has been previously diluted.

Actions and Uses.—*Internally*:—Similar to, but more certain in its action and less liable to produce local irritation than, arsenious acid. *Externally*:—In obstinate skin affections, and for the destruction of pediculi, acari, and other external parasites.*

Doses.—HORSE, 1 to 2 fluid ounces.—CATTLE, 1 to 2 fluid ounces.—SHEEP, ½ to 3 drachms.—PIG, ½ to 3 drachms.—DOG, 5 to 20 minims.

Mode of Application.—*Internally*:—Diluted with sufficient water to make a draught. *Externally*:—Diluted with from two to three times its bulk of water.

Antidote.—Liquor Ferri Perchloridi (?).

LIQUOR ARSENICI HYDROCHLORICUS

HYDROCHLORIC SOLUTION OF ARSENIC

Synonym.—Liquor Arsenici Chloridi.

Composition.—A solution of arsenious anhydride (arsenious acid) in dilute hydrochloric acid. One ounce of the solution contains four grains of arsenious anhydride.

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* Several "sheep-washes" and "dips" have a composition similar to that of Liquor Arsenicalis; the simplest is thus prepared:—

Take of Arsenious Acid, in powder	of each, 8 to 10 ounces.
Carbonate of Potash .	
Water	20 gallons.

Boil together for half an hour. This quantity is sufficient for twenty sheep. Sometimes 8½ ounces of soft soap and 6 ounces of flowers of sulphur are added to the foregoing mixture before it is boiled.

Preparation.—Take of—

Arsenious Acid, in powder .	80 grains.
Hydrochloric Acid	2 fluid drachms.
Distilled Water	a sufficiency.

Boil the arsenious acid with the hydrochloric acid and four ounces of the water, then add distilled water to make the bulk up to one pint.

No decomposition takes place in this process; the arsenious acid is simply dissolved by the dilute acid.

Characters and Tests.—Colourless liquid, having an acid reaction. Sp. gr. 1·009. Sulphuretted hydrogen gives at once a bright yellow precipitate (arsenious sulphide). Soluble in Ammonium Carbonate.

Actions and Uses.
Modes of Application. } Same as Liquor Arsenicalis.
Doses.

Antidote.—A mixture of an alkaline carbonate and Ferri Peroxidum humidum.

LIQUOR CALCIS

SOLUTION OF LIME

Synonyms.—Aqua Calcis; Lime-Water.

Composition.—An aqueous solution of calcium hydrate, $Ca(HO)_2$. Ten fluid ounces of the solution should contain 7·4 grains of calcium hydrate.

Mode of Preparation.—Take of—

Slaked Lime, freshly prepared . .	2 ounces.
Distilled Water	1 gallon

Put the lime into a stoppered bottle containing the water, and shake well for two or three minutes. After twelve hours the excess of lime will have subsided, and the clear solution may be drawn off with a syphon as it is required for use, or transferred to a green glass bottle* furnished with a well-ground stopper.

Characters and Tests.—Transparent, colourless, and odourless liquid, having a disagreeable alkaline taste. Feebly alkaline to test-paper. Exposed to the air, a white pellicle or film (calcium carbonate) forms upon its surface,† owing to the absorption of carbonic anhydride by the calcium hydrate. With solution of oxalic acid it gives a white precipitate (calcium oxalate), insoluble in acetic acid.

Actions and Uses.—Chiefly as an antacid; occasionally as an antidote to poisoning by acids.

Doses.—HORSE, 4 to 6 fluid ounces.—CATTLE, 4 to 6 fluid ounces.—SHEEP, ½ to 2 fluid ounces.—PIG, ½ to 2 fluid ounces.—DOG, 1 to 4 fluid drachms.

Mode of Application.—Mixed with sufficient water to form a draught.

Incompatibles.—Acids, and most metallic salts.

Preparations.—Linimentum Calcis; Lotio Hydrargyri flava; Lotio Hydrargyri nigra.

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* Lime-water should not be kept in white glass bottles, as it dissolves the lead of which they are partly composed.

† This reaction takes place much more rapidly if air from the lungs be blown through a tube into the lime-water.

LIQUOR CALCIS CHLORATÆ

SOLUTION OF CHLORINATED LIME

Synonyms.—Solution of Chloride of Lime; Solution of Hypochlorite of Lime.

Composition.—Water holding in solution an amount of calcium hypochlorite equivalent to thirteen grains of available chlorine in one ounce of the fluid.

Mode of Preparation.—Take of—

Chlorinated Lime	1 pound.
Distilled Water	1 gallon.

Well mix the water and chlorinated lime by trituration in a mortar, and, having transferred the mixture to a stoppered bottle, shake it occasionally during three hours; now pour out the contents of the bottle on a calico filter, and preserve the solution, which passes through, in a stoppered bottle.

Characters and Tests.—Transparent, nearly colourless liquid. Sp. gr. 1·035. Exposed to the atmosphere, the calcium hypochlorite is decomposed by carbonic anhydride; the calcium carbonate produced is deposited as a white precipitate,* and the chlorine which is set free may be recognised by its odour.

Actions and Uses.—Stimulant, mild erodent, and deodorizer to ill-conditioned and fetid wounds and fistulous sores. Sprinkled about stables and other buildings, it acts as a deodorizer and disinfectant.

In cases of grease, exfoliating bone, &c., it should be diluted with from ten to fifteen times its bulk of water.

Preparation.—Cataplasma Calcis Chloratæ.

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* This reaction takes place much more rapidly if air from the lungs be blown through a tube into the solution.

LIQUOR CANTHARIDIS TEREBINTHINATA

TEREBINTHINATED SOLUTION OF CANTHARIDES

Take of—

Cantharides, in powder	1 part.
Oil of Turpentine	8 parts.

Digest, at a gentle heat, for three or four days, with frequent agitation, and filter. To every ounce of the filtrate add an equal quantity of Canada balsam, and thoroughly mix them together.

Use.—For medicating materials used for setons. The tape, cotton, cord, or other material, is immersed in the liniment until it ceases to imbibe any more of the liquid; it is then to be removed and drawn between the finger and thumb to deprive it of any superfluous fluid, and finally hung up to dry.

LIQUOR CUPRI SULPHATIS

SOLUTION OF SULPHATE OF COPPER

Take of—

Sulphate of Copper, in powder .	5 ounces.
Boiling Distilled Water . . .	1 pint.

Dissolve and filter.

Uses.—For injection into sinuses, one part of this solution is mixed with from two to three times its volume of water. See also Cupri Sulphas.

LIQUOR CUPRI SULPHATIS COMPOSITUS

COMPOUND SOLUTION OF SULPHATE OF COPPER

Take of—

Sulphate of Copper . . . . Alum	of each 3 ounces.
Water	$1\frac{1}{2}$ pint.
Sulphuric Acid	$1\frac{1}{2}$ ounce.

Uses.—See Cupri Sulphas.

LIQUOR FERRI PERCHLORIDI FORTIOR

STRONG SOLUTION OF PERCHLORIDE OF IRON

Composition.—One fluid drachm contains 35·47 grains of perchloride of iron (ferric chloride, Fe_2Cl_6), dissolved in water.

This preparation also contains free hydrochloric acid.

Mode of Preparation.—Take of—

Iron Wire	2 ounces.
Hydrochloric Acid . . .	12 fluid ounces.
Nitric acid	9 fluid drachms.
Distilled Water	8 fluid ounces.

Mix eight fluid ounces of the hydrochloric acid with the distilled water, and in this dissolve the iron at a gentle heat. Filter the solution, add it to the remainder of the hydrochloric acid and the nitric acid, heat the mixture briskly until on the sudden evolution of red fumes the liquid becomes of an orange-brown colour, then evaporate by the heat of a water-bath until it is reduced to ten fluid ounces.

The production of perchloride of iron takes place in two stages:

$$1.\quad \overset{\text{Iron.}}{Fe} + \overset{\text{Hydrochloric Acid.}}{2HCl} = \overset{\text{Ferrous Chloride.}}{FeCl_2} + \overset{\text{Hydrogen.}}{H_2}$$

$$2.\quad \overset{\text{Ferrous Chloride.}}{6FeCl_2} + \overset{\text{Hydrochloric Acid.}}{6HCl} + \overset{\text{Nitric Acid.}}{2HNO_3} = \overset{\text{Ferric Chloride (Perchloride of Iron).}}{3Fe_2Cl_6} + \overset{\text{Nitric Oxide.}}{2NO} + \overset{\text{Water.}}{4H_2O}$$

Characters and Tests.—Orange-brown solution, with a strong styptic and inky taste; miscible with water and rectified spirit in all proportions. Sp. gr. 1·338. Diluted with water, it gives a white precipitate (silver chloride) with silver nitrate, showing that it contains chlorine, and a dark blue precipitate (Prussian blue) with potassium ferrocyanide, indicating the presence of a ferric salt.

Uses.—In preparing Tinctura Ferri Perchloridi.

LIQUOR FERRI PERSULPHATIS

SOLUTION OF PERSULPHATE OF IRON

Take of—

Sulphate of Iron . . .	8 ounces.
Sulphuric Acid	¾ fluid ounce.
Nitric Acid	¾ fluid ounce.
Distilled Water . . .	12 fluid ounces.

Add the sulphuric acid to ten ounces of the water, and dissolve the sulphate or iron in the mixture with the aid of heat. Mix the nitric acid with the remaining two ounces of water, and add the diluted acid to the solution of sulphate of iron. Concentrate the whole by boiling, until, by the sudden disengagement of ruddy vapours, the liquid ceases to be black and acquires a red colour. Test a drop of the solution with potassium ferrocyanide; if a blue precipitate be produced, indicating the presence of some unaltered ferrous salt, a few additional drops of nitric acid are to be added and the boiling renewed in order that the whole may become converted into ferric salt.* When the solution is cold, make up the quantity to eleven fluid ounces by the addition, if necessary, of distilled water:—

$$\overset{\text{Sulphate of Iron (Ferrous Sulphate).}}{2FeSO_4} + \overset{\text{Sulphuric Acid.}}{2H_2SO_4} + \overset{\text{Oxygen from Nitric Acid.}}{O_2} = \overset{\text{Persulphate of Iron (Ferric Sulphate).}}{2Fe_2(SO_4)_3} + \overset{\text{Water.}}{2H_2O}$$

Uses.—Styptic; also in the preparation of Ferri Peroxidum humidum.

LIQUOR HYDRARGYRI PERCHLORIDI

SOLUTION OF PERCHLORIDE OF MERCURY

Take of—

Perchloride of Mercury . .	3 to 6 grains.
Water	1 fluid ounce.

Uses.—*Externally*:—In the treatment of scab and mange, also for the destruction of vermin infesting the skin.†

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* The boiling, with small additional quantities of nitric acid, must be repeated until a drop of the solution ceases to yield a blue precipitate with potassium ferricyanide.

† 2 minims of hydrocyanic acid added to 2 grains of perchloride of mercury dissolved in 1 fluid ounce of water, forms a lotion which is sometimes applied to the skin, especially of dogs, to relieve itching.

LIQUOR IODI ET POTASSII IODIDI

SOLUTION OF IODINE AND IODIDE OF POTASSIUM

Synonyms.—Liquor Iodi; Lugol's Solution.

Take of—

Iodine	20 grains.
Iodide of Potassium	30 grains.
Distilled Water	1 fluid ounce.

Mix and dissolve.

Uses.—Injected into cavities to cause adhesion of their sides; one fluid drachm diluted with three fluid ounces of water injected into the bladder, to arrest hæmorrhage from that organ; applied with friction to the skin, when depilitated, it is said to promote the return of hair.

LIQUOR MORPHIÆ ACETATIS

SOLUTION OF ACETATE OF MORPHIA

Take of—

Acetate of Morphia	16 grains.
Dilute Acetic Acid	32 minims.
Rectified Spirit	1 ounce.
Distilled Water	3 ounces.

Dissolve the acetate of morphia in the mixed liquids. Each fluid drachm contains ½ grain.

Actions and Uses.—Stimulant, sedative, and narcotic.

Doses.—HORSE, 2 to 6 fluid drachms.—CATTLE, 2 to 6 fluid drachms.—DOG, 5 to 15 minims.

LIQUOR MORPHIÆ HYDROCHLORATIS

SOLUTION OF HYDROCHLORATE OF MORPHIA

Take of—

Hydrochlorate of Morphia . .	16 grains.
Diluted Hydrochloric Acid . .	32 minims.
Rectified Spirit	1 ounce.
Distilled Water	3 ounces.

Mix the hydrochloric acid, the spirit, and the water, and dissolve the hydrochlorate of morphia in the mixture.

One fluid drachm of this solution contains half a grain of hydrochlorate of morphia.

Uses.—As a sedative, soporific, antispasmodic, &c.

LIQUOR PLUMBI SUBACETATIS

SOLUTION OF SUBACETATE OF LEAD

Synonyms.—Liquor Plumbi Diacetatis; Solution of Diacetate of Lead; Goulard's Extract.

Composition.—Not accurately known; probably a mixture of two or more basic acetates of lead.

Mode of Preparation.—Take of—

Acetate of Lead	5 ounces.
Oxide of Lead (Litharge), in powder	3½ ounces.
Distilled Water	1 pint, or a sufficiency.

Boil the acetate and oxide of lead in the water for half an hour, constantly stirring; then filter, and when the liquid is cold add to it more distilled water until the product measures twenty fluid ounces. Keep the clear solution in well-stoppered bottles, to prevent its being decomposed by atmospheric carbonic anhydride. In this process the acetate of lead unites with the oxide of lead, and is transformed into the mixture of basic salts above referred to.

Characters and Tests.—Heavy, clear, colourless liquid. Sp. gr. 1·26. Alkaline reaction, sweet astringent taste. Exposed to the air it becomes turbid,* from the absorption of carbonic anhydride and consequent formation of lead carbonate. The addition of strong sulphuric acid throws down a white precipitate (lead sulphate), and liberates the vapour of acetic acid, which can be identified by its odour. The former reaction indicates the presence of lead; the latter that the salt is an acetate.

Uses.—In preparing Linimentum Plumbi Subacetatis.

LIQUOR PLUMBI SUBACETATIS DILUTUS

DILUTED SOLUTION OF SUBACETATE OF LEAD

Synonym.—Goulard's Water.

Mode of Preparation.—Take of—

Solution of Subacetate of Lead Rectified Spirit	of each, 2 fluid drachms.
Distilled Water†	19½ fluid ounces.

Mix, and filter through paper. Keep the clear solution in a stoppered bottle.

Actions and Uses.—*Externally*:—Astringent and sedative. Applied, by means of rags wetted with it, to the skin to allay pain and irritation, and to subdue superficial inflammation. See also Linimentum Plumbi Subacetatis. As a collyrium, in conjunctival ophthalmia, one part of this preparation, diluted with an equal bulk of water, is to be used.

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* Air from the lungs blown through a tube into the solution produces the turbidity much more rapidly. Compare with Plumbi Acetas.

† Common water should never be employed for diluting subacetate of lead, as it precipitates the lead as sulphate and carbonate, and thus destroys or diminishes the activity of the preparation.

LIQUOR PLUMBI SUBACETATIS ET OPII

SOLUTION OF SUBACETATE OF LEAD AND OPIUM

Take of—

Solution of Subacetate of Lead	1 fluid drachm.
Tincture of Opium	1 fluid drachm.
Distilled Water	6 fluid ounces.

Mix.

Uses.—Anodyne to wounds, to blistered and cauterised surfaces, and in superficial inflammation of the eye, skin, or joints.

LIQUOR POTASSÆ

SOLUTION OF POTASH

Composition.—Twenty-seven grains of potassium hydrate, KHO, in one fluid ounce of water.

Mode of Preparation.—Take of—

Carbonate of Potash	1 pound.
Slaked Lime	12 ounces.
Distilled Water	1 gallon.

Dissolve the carbonate of potash in the water, and having heated the solution to the boiling-point in a clean iron vessel, gradually mix with it the slaked lime, and continue the ebullition for ten minutes with constant stirring. Then remove the vessel from the fire; and when, by the subsidence of the insoluble matter (calcium carbonate), the supernatant liquor (solution of potassium hydrate) has become perfectly clear, transfer it by means of a syphon to a green glass bottle* furnished with an air-tight stopper, and add distilled water, if necessary, to make it correspond with the test of specific gravity and neutralizing power.†

Potassium Carbonate.		Calcium Hydrate.		Potassium Hydrate (Caustic Potash).		Calcium Carbonate.
K_2CO_3	$+$	$Ca(HO)_2$	$=$	$2KHO$	$+$	$CaCO_3$

Characters and Tests.— Transparent, colourless, and odourless liquid. Sp. gr. 1·058. Alkaline to test-paper; acrid taste; feels soapy when rubbed between the finger and thumb. Mixed with excess of solution of tartaric acid, and stirred, it yields a white granular precipitate (hydrogen-potassium tartrate), showing the presence of potassium. Added to excess of diluted hydrochloric acid, no effervescence should be occasioned, indicating its freedom from carbonate. Treated with slight excess of nitric acid, and evaporated to dryness, the residue dissolves in water and yields a nearly clear solution, which should give no precipitate, or avery slight one; when separate portions of it are mixed with silver nitrate, barium chloride, and solution of ammonia; these reactions prove the absence, or nearly so, of chlorides, sulphates, and iron respectively.

Use.—In preparing potassa caustica.

LIQUOR POTASSÆ NITRATIS

SOLUTION OF NITRATE OF POTASH

Take of—

Nitrate of Potash, in powder .	1 ounce.
Water	7 fluid ounces.

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* As it slowly acts upon and dissolves the lead of white bottles.

† See the 'British Pharmacopœia,' published in 1867, if it be required to make this test.

Dissolve, and apply immediately after the solution of the salt has been effected.

Uses.—Stimulant to gangrenous and other wounds, also to superficial inflammations and slight sprains.

LIQUOR POTASSÆ PERMANGANATIS

SOLUTION OF PERMANGANATE OF POTASH

Take of—

Permanganate of Potash . .	4 grains.
Water	1 fluid ounce.

Dissolve.

Use.—Cleansing wash for diseased surfaces.

LIQUOR POTASSÆ SULPHURATÆ

SOLUTION OF SULPHURATED POTASH

Take of—

Sulphurated Potash . . .	1 ounce.
Water	8 fluid ounces.

Dissolve.

Use.—Applied to the skin in scab, mange, and other skin affections.

LIQUOR SODÆ

SOLUTION OF SODA

Composition.—18·8 grains of sodium hydrate, NaHO, in every fluid ounce of water.

Mode of Preparations.—Take of—

Carbonate of Soda	28 ounces.
Slaked Lime	12 ounces.
Distilled Water	1 gallon.

Dissolve the carbonate of soda in the water, and, having heated the solution to the boiling-point in a clean iron vessel, gradually mix with it the slaked lime, and continue the ebullition for ten minutes with constant stirring. Then removed the vessel from the fire, and when, by the subsidence of the insoluble matter (calcium carbonate), the supernatant liquid (solution of sodium hydrate) has become perfectly clear, transfer it by means of a siphon to a green glass * bottle, furnished with an air-tight stopper, and add distilled water, if necessary, to make it correspond with the tests of specific gravity and neutralizing power.†

Sodium Carbonate.		Calcium Hydrate.		Sodium Hydrate (Caustic Soda).		Calcium Carbonate.
Na_2CO_3	$+$	$Ca(HO)_2$	$=$	$2NaHO$	$+$	$CaCO_3$

Characters and Tests.—Transparent, colourless, and odourless liquid. Sp. gr. 1047. Alkaline to test-paper; acrid taste; feels soapy when rubbed between the finger and thumb. Mixed with excess of solution of tartaric acid, and stirred, no precipitate is thrown down; thus it is distinguished from Liquor Potassæ. If a platinum wire, moistened with the solution, be heated before the blowpipe, a yellow colour is imparted to the flame, indicating the presence of sodium. It should not effervesce when added to an excess of diluted hydrochloric acid, proving the absence of carbonate. Chlorides, sulphates, and iron are detected in the manner described under Liquor Potassæ.

Preparation.—Soda Caustica.

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* As it slowly acts upon and dissolves the lead of white ones.

† See the 'British Pharmacopœia' for 1867, if it be desired to apply this test.

LIQUOR STRYCHNIÆ

SOLUTION OF STRYCHNIA

Take of—

Strychnia, in crystals . .	10 grains.
Diluted Hydrochloric Acid	15 minims.
Rectified Spirit	5 fluid drachms.
Distilled Water	15 fluid drachms.

Mix the hydrochloric acid with ten drachms of the water, and dissolve the strychnia in the mixture by the aid of heat; then add the spirit and the remainder of the water.[*]

The strychnia, during its solution in the hydrochloric acid, is converted into hydrochlorate, $C_{21}H_{22}N_2O_2$. HCl.

Actions and Uses.—Stimulant and tonic.

Doses.[*]—Horse, 2 to 6 fluid drachms.—Cattle, 2 to 6 fluid drachms.—Sheep, ½ to 2 fluid drachms.—Dog, 3 to 10 minims.

LIQUOR ZINCI CHLORIDI

SOLUTION OF CHLORIDE OF ZINC

Synonym.—Butter of Zinc.

Composition.—Prepared in the manner described in the British Pharmacopœia for 1867, one fluid ounce contains 366 grains of zinc chloride, $ZnCl_2$. Sir William Burnett's Disinfecting Fluid is a very similar preparation, and is the form of chloride of zinc most commonly employed in veterinary practice; one fluid ounce of it contains 200 grains of zinc chloride. A solution of British Pharmacopœia strength, but containing small quantities of iron, and other impurities, may be obtained by the following—

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[*] Two fluid drachms of Liquor Strychniæ contain one grain of strychnia.

Mode of Preparation.—Take of—

Granulated Zinc	1 pound.
Hydrochloric Acid . . .	44 fluid ounces.
Distilled Water	1 pint.

Mix the hydrochloric acid and water in a porcelain dish, add the zinc, and apply a gentle heat to promote the action until gas (hydrogen) is no longer evolved. Boil for half an hour, supplying the water lost by evaporation, and allow the product to cool. Filter the liquid (zinc chloride) into a porcelain basin, and evaporate until it is reduced to the bulk of two pints.

Zinc.		Hydrochloric Acid.		Zinc Chloride (Chloride of Zinc).		Hydrogen.
Zn	$+$	$2HCl$	$=$	$ZnCl_2$	$+$	H_2

Characters and Tests.—Heavy, oily, colourless liquid, having a powerfully styptic and metallic taste. Diluted with water, it will give no precipitate with sulphuretted hydrogen, unless lead be present, when a black precipitate or brown coloration (lead sulphide) is produced. If solution of ammonia be slowly added to the preparation diluted with water, a white, or, if iron be present, a brownish-white precipitate (zinc hydrate) will be thrown down, which dissolves in excess of the precipitant. On saturating this ammoniacal solution, after filtration, if necessary, with sulphuretted hydrogen, a white precipitate (zinc sulphide) is produced, which readily dissolves in dilute hydrochloric acid; this reaction is indicative of the presence of zinc. Another portion of the diluted preparation, acidified with nitric acid, and treated with silver nitrate, furnishes a white precipitate (silver chloride), showing that the salt is a chloride.

Actions and Uses.—Chiefly employed as a deodorizer and disinfectant; for this purpose one fluid ounce of chloride of zinc may be diluted with one gallon of water and distributed about the appartment in shallow plates, or it may be sprinkled over the floor, &c. Fifty minims of Burnett's Fluid, diluted with one pint of water, forms a lotion which may be applied, by means of a sponge saturated with it, to open joints.

In the concentrated state it is a powerful astringent and caustic, and used in the treatment of fetid ulcers and wounds, fistulæ, luxuriant growths, &c. See also Zinci Chloridum.

Preparation.—Zinci Chloridum.

LIQUOR ZINCI SULPHATIS

SOLUTION OF ZINC SULPHATE

Take of—

Sulphate of Zinc	5 ounces.
Distilled Water	20 ounces.

Mix the sulphate of zinc with the water, and dissolve by the aid of heat.

Actions and Uses.—Similar to Liquor Zinci Chloridum.

LOTIO ACIDI CARBOLICI

LOTION OF CARBOLIC ACID

Take of—

Carbolic Acid . . .	1 fluid drachm.
Water	6 to 12 fluid ounces.

Mix and well shake.

Uses.—Dressing for unhealthy sores, indolent ulcers, foot-rot in sheep, the feet of cattle suffering from foul, in the treatment of eczema, grease, mange, and scab, also to allay itching in skin affections.*

LOTIO AMMONIÆ ACETAS

LOTION OF ACETATE OF AMMONIA

Take of—

Solution of Acetate of Ammonia	Of each, 4 fluid ounces.
Rectified Spirit	
Water	1 pint.

Mix.

Use.—Discutient. The part is to be kept constantly moist with the lotion.

LOTIO AMMONII CHLORIDI ET CAMPHORÆ

LOTION OF CHLORIDE OF AMMONIUM AND CAMPHOR

Synonym.—Lotio Discutiens; Discutient Lotion.

Mode of Preparation.—Take of—

Chloride of Ammonium, in powder	1 ounce.
Diluted Acetic Acid	8 fluid ounces.
Spirit of Camphor	1 fluid ounce.

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* One drachm of carbolic acid shaken with a quart of water forms an efficient wash for the mouth, feet, and udders, of animals suffering from aphthous epizootic.

Dissolve the chloride of ammonium in the diluted acetic acid, and add the spirit of camphor.

Uses.—Discutient to indolent tumours and chronic sprains.

It should be well shaken before use, and applied with friction.

LOTIO AMMONII CHLORIDI ET POASSÆ NITRATIS

LOTION OF CHLORIDE OF AMMONIUM AND NITRATE OF POTASH

Synonyms.—Lotio Refrigerans; Cooling Lotion.

Take of—

Chloride of Ammonium, in powder . . . . Nitrate of Potash, in powder	Of each, 2½ ounces.
Water	1 pint.

Add the chloride of ammonium and nitrate of potash to the water, and, directly they are dissolved, dip cloths in the solution and lay them on the inflamed part.

LOTIO HYDARGYRI FLAVA

YELLOW MERCURIAL LOTION

Synonym.—Yellow Wash.

Take of—

Perchloride of Mercury . . .	18 grains.
Solution of Lime	10 fluid ounces.

Mix.

Use.—Stimulant to unhealthy sores and ulcers.

LOTIO HYDRARGYRI NIGRA

BLACK MERCURIAL LOTION

Synonym.—Black Wash.

Take of—

Subchloride of Mercury . . .	30 grains.
Solution of Lime	13 fluid ounces.

Mix.

Use.—Stimulant to unhealthy sores and ulcers.

MAGNESIA*

MAGNESIA

Synonyms.—Magnesium Oxide; Magnesia Usta.

Composition.—MgO.

Mode of Preparation.—Take of—

Carbonate of Magnesia† . . .	4 ounces.

Put it into a Cornish or Hessian crucible closed loosely by a lid, and expose it to a low red heat until a small quantity taken from the centre of the crucible, when it has cooled, and dropped into dilute sulphuric acid, causes no effervescence, showing that it contains no carbonate.

$$\overset{\text{Officinal Carbonate of Magnesia.}}{3MgCO_3 . Mg(HO)_2 . 4H_2O} = \overset{\text{Magnesia.}}{4MgO} + \overset{\text{Carbonic Anhydride.}}{3CO_2} + \overset{\text{Water.}}{5H_2O}$$

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* Magnesia Levis (Light Magnesia) is a bulky white powder, possessing the same chemical and therapeutic properties as this preparation.

† Really a mixture of carbonate and hydrate. See Magnesiæ Carbonas.

Characters.—White powder, very slightly soluble in water, but readily dissolves in acids without effervescence. Its solution in hydrochloric acid, when neutralized by a mixed solution of ammonium chloride and ammonia, gives a copious crystalline precipitate (ammonio-magnesium phosphate) when hydrogen-di-sodium phosphate is added to it. Dissolved in nitric acid, it should give no precipitate with barium chloride, showing the absence of sulphate, and when neutralized with a mixture of ammonium chloride and ammonia, it should yield no precipitate with ammonium oxalate, indicating its freedom from calcium.

Actions and Uses.—Antacid and laxative. Only given by the veterinarian to foals or calves suffering from indigestion.

Doses.—From 2 to 8 drachms, combined with a carminative, are administered, suspended in milk or gruel.

MAGNESIÆ CARBONAS*

CARBONATE OF MAGNESIA

Synonym.—Magnesia Alba.

Composition.—A mixture of magnesium carbonate and hydrate, to which the formula $3MgCO_3 . Mg(HO)_2 . 4H_2O$ has been assigned.

Mode of Preparation.—Take of—

Sulphate of Magnesia	10 ounces.
Carbonate of Soda	12 ounces.
Boiling Distilled Water . . .	A sufficiency.

Dissolve the sulphate of magnesia and the carbonate of soda each in a pint of the water, mix the two solutions, and evaporate the whole to perfect dryness by means of a sand-bath. Digest the residue for half an hour with two pints of the water, and having collected the insoluble matter (officinal carbonate of magnesia) on a calico filter, wash it repeatedly with distilled water (to remove sodium sulphate) until the washings cease to give a precipitate with barium chloride. Finally, dry the product at a temperature not exceeding 212° F.

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* **Magnesiæ Carbonas Levis (Light Carbonate of Magnesia) is a bulky white powder, possessing the same chemical and therapeutic properties as this preparation.**

$$\overset{\text{Magnesium Sulphate.}}{4MgSO_4} + \overset{\text{Sodium Carbonate.}}{4Na_2CO_3} + \overset{\text{Water.}}{5H_2O} = \overset{\text{Officinal Carbonate of Magnesia.}}{3MgCO_3.Mg(HO)_2.4H_2O}$$

$$+ \overset{\text{Sodium Sulphate.}}{4Na_2SO_4} + \overset{\text{Carbonate Anhydride.}}{CO_2}$$

Characters and Tests.—White granular powder, which dissolves with effervescence in the diluted nitric acid, showing that the preparation contains a carbonate, and yielding a solution which, when treated with ammonium chloride, ammonia, and hydrogen-di-sodium phosphate, give a copious white crystalline precipitate (ammonio-magnesium phosphate), showing the presence of magnesium. With slight excess of hydrochloric acid it forms a clear solution, in which barium chloride will cause no precipitate if sulphates be absent. Another portion of the solution supersaturated with ammonia gives no precipitate with ammonium oxalate or sulphuretted hydrogen, unless calcium and iron are respectively present.

Actions and Uses }
Doses. } Same as Magnesia.

MAGNESIÆ SULPHAS

SULPHATE OF MAGNESIA

Synonyms.—Magnesium Sulphate; Epsom Salts.

Composition.—$MgSO_4 . 7Aq$.

Mode of Preparation.—Various methods are adopted, but the simplest consists in dissolving *magnesite* (native magnesium carbonate, $MgCO_3$) in dilute sulphuric acid, heating the solution formed (magnesium sulphate) until carbonic anhydride ceases to be evolved, filtering, and evaporating the filtrate, so that the resulting magnesium sulphate may crystallize out on cooling and standing.

Magnesium Carbonate.		Sulphuric Acid.		Magnesium Sulphate (Sulphate of Magnesia).		Water.		Carbonic Anhydride.
$MgCO_3$	$+$	H_2SO_4	$=$	$MgSO_4$	$+$	H_2O	$+$	CO_2

In assuming the solid state the salt acquires seven molecules of water of crystallization.*

Characters and Tests.—Very small, colourless, transparent rhombic prisms, possessing a bitter taste. Readily dissolves in water, and the solution gives a copious white crystalline precipitate (ammonio-magnesium phosphate) with ammonium chloride, ammonia, and hydrogen-disodium phosphate; and a white precipitate; insoluble in nitric acid, with barium chloride, showing that the salt is a sulphate. Should give no blue precipitate with potassium ferrocyanide, indicating its freedom from iron.

Actions and Uses.—Cathartic, diuretic, and febrifuge. Chiefly employed, combined with ginger, as a purgative for cattle and sheep. Used also as a febrifuge for the horse, and as an antidote to poisoning by lead.

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* Magnesium sulphate is also prepared by decomposing magnesian limestone ($MgCO_3 + CaCO_3$) with sulphuric acid.

Magnesian Limestone.		Sulphuric Acid.		Magnesium Sulphate.		Calcium Sulphate.
$[MgCO_3 + CaCO_3]$	$+$	$2H_2SO_4$	$=$	$MgSO_4$	$+$	$CaSO_4$

The magnesium sulphate is separated from the comparatively insoluble calcium sulphate by solution in water, and is purified by crystallization.

Doses.—*Cathartic*:—Cattle, 1 to 1½ pound.—Sheep, 1 to 2 ounces.—Dog, 1 to 4 drachms.

Febrifuge:—Horse, 2 to 4 ounces, dissolved in water, twice a day.

Modes of Application.—Dissolved in from ten to twenty times its weight of water. Sometimes, as in cases of obstinate constipation and torpidity of the bowels in cattle, a drachm of calomel, or ten to fifteen croton beans, are added to the ordinary dose of the salt, to increase its cathartic activity.

Incompatibles.—Alkaline carbonates; lime-water; acetate of lead.

MANGANESII OXIDUM NIGRUM

BLACK OXIDE OF MANGANESE

Synonyms.—Manganic Peroxide; Manganese Dioxide; Peroxide of Manganese; Binoxide of Manganese.

Composition.—MnO_2. Found native.

Characters and Tests.—Heavy black powder, which dissolves almost entirely in hydrochloric acid, with evolution of chlorine, and gives off oxygen when heated to bright redness.

Use.—Chiefly for the production of chlorine, and in the preparation of Potassium Permanganate.

MARMOR ALBUM

WHITE MARBLE

Composition.—Naturally crystallized calcium carbonate, $CaCO_3$.

Characters and Tests.—Heavy, white, crystalline solid. Dissolves almost completely in hydrochloric acid, with evolution of carbonic anhydride.

Use.—Chiefly in the production of carbonic anhydride.

MASSA ALOES

MASS OF ALOES

Synonym.—Cathartic mass.

Take of—

Barbadoes Aloes, in small pieces	8 ounces.
Glycerin	2 ounces.
Ginger,* in powder	1 ounce.
Rape Oil	1 ounce.

Melt together in a water-bath, and thoroughly incorporate by frequent stirring.

Use.—Cathartic for the horse.

Dose.—From 6 to 8 drachms.

MASSA ALOES COMPOSITA

COMPOUND MASS OF ALOES

Synonym.—Alterative Mass.

Take of—

Barbadoes Aloes, in powder	1 ounce.
Soft Soap	1 ounce.
Common Mass	6 ounces.

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* In cases in which the use of ginger may be considered objectionable, substitute an equal weight of powdered gentian.

Thoroughly incorporate by beating in a mortar, so as to form a mass.

Use.—Alterative for the horse.

Dose.—1 ounce.

MASSA ANTIMONII TARTARATA COMPOSITA

COMPOUND MASS OF TARTARATED ANTIMONY

Synonym.—Fever Ball.

Take of—

Tartarated Antimony, in powder .	½ drachm.
Camphor, in powder	½ drachm.
Nitrate of Potash, in powder . .	2 drachms.
Common Mass	a sufficiency.

Mix so as to form a bolus.

Use.—Febrifuge for the horse.

Dose.—The above mixture constitutes one dose.

MASSA BELLADONNÆ COMPOSITA

COMPOUND MASS OF BELLADONNA

Synonym.—Cough Ball.

Take of—

Extract of Belladonna	½ to 1 drachm.
Barbadoes Aloes, in powder .	1 drachm.
Nitrate of Potash, in powder .	2 drachms.
Common Mass	a sufficiency.

Mix so as to form a bolus.

Use.—For the horse in chronic cough.

Dose.—The above mixture constitutes one dose.

MASSA CATECHU COMPOSITA

COMPOUND MASS OF CATECHU

Synonym.—Astringent Mass.

Take of—

Extract of Catechu, in fine powder	1 ounce.
Cinnamon Bark, in fine powder	1 ounce.
Common Mass	6 ounces.

Mix.

Use.—Astringent for the horse.

Dose.—1 ounce, in the form of bolus.

MASSA COMMUNIS

COMMON MASS

Take of—

Linseed, finely ground	of each, equal parts.
Treacle	

Mix together so as to form a mass.

Use.—An excipient for medicinal agents when they are to be administered in the form of bolus.

MASSA CUPRI SULPHATIS

MASS OF SULPHATE OF COPPER

Synonym.—Tonic Mass.

Take of—

Sulphate of Copper, finely powdered	1 ounce.
Ginger, in powder	1 ounce.
Common Mass	6 ounces.

Mix.

Use.—Tonic for the horse.

Dose.—6 to 8 drachms.

MASSA DIGITALIS COMPOSITA

COMPOUND MASS OF DIGITALIS

Synonym.—Cough Ball.

Take of—

Barbadoes Aloes, in powder . .	2 ounces.
Digitalis	1 ounce.
Common Mass	13 ounces.

Mix.

Use.—For the horse in chronic cough.

Dose.—1 ounce, once or twice a day.

MASSA FERRI SULPHATIS

MASS OF SULPHATE OF IRON

Synonym.—Tonic Mass.

Take of—

Sulphate of Iron, in powder	2 ounces.
Ginger, in powder	1 ounce.
Common Mass	5 ounces.

Mix.

Use.—Tonic for the horse.

Dose.—6 to 8 drachms.

MASSA RESINÆ COMPOSITA

COMPOUND MASS OF RESIN

Synonym.—Diuretic Mass.

Take of—

Resin, in powder	of each, equal parts.
Nitrate of Potash, in powder	
Hard Soap	

Mix.

Use.—Diuretic for the horse.

Dose.—1 ounce.

MASSA ZINGIBERIS COMPOSITA

COMPOUND MASS OF GINGER

Synonym.—Cordial Mass.

Take of—

Ginger, in powder	of each, equal parts.
Gentian Root, in powder	
Treacle	a sufficiency.

Mix so as to form a mass.

Use.—Stomachic for the horse.

Dose.—1 ounce.

MISTURA AMMONIÆ

AMMONIA MIXTURE

Take of—

Solution of Ammonia	of each, equal parts.
Spirit of Nitrous Ether	
Compound Tincture of Gentian	

Actions and Uses.—Stimulant and antispasmodic.

Doses.—Horse, 1 to 2 fluid ounces.—Cattle, 2 to 4 fluid ounces.—Sheep, 4 to 6 fluid drachms.

MISTURA CREASOTI

CREASOTE MIXTURE

Take of—

Creasote	16 minims.
Acetic Acid	16 minims.
Spirit of Juniper	½ drachm.
Syrup	1 ounce.
Distilled water	15 ounces.

Mix.

Actions and Uses.—Astringent, styptic, and antiseptic.

Dose.—For the Horse, 7 to 10 ounces. For the Dog, ½ to 1 ounce.

MISTURA CRETÆ COMPOSITA

COMPOUND CHALK MIXTURE

Synonym.—Sheep and Calves' Cordial.

Take of—

Prepared Chalk	2 ounces.
Catechu, in powder	1 ounce.
Ginger	½ ounce.
Opium	1 drachm.
Peppermint Water	1 pint.

Mix.

Use.—To check diarrhœa in calves and sheep.

Doses.—CALF, ½ to 1 fluid ounce.—SHEEP, 4 to 8 fluid drachms.

MISTURA RICINI

CASTOR-OIL MIXTURE

Take of—

Castor Oil	3 ounces.
Syrup of Buckthorn	2 ounces.
Syrup of Poppies	1 ounce.

Mix.

Use.—Cathartic for the dog.

Dose.—4 to 8 fluid drachms.

MORPHIA

MORPHIA

An alkaloid $C_{17}H_{19}NO_3$, obtained from opium. Nearly insoluble in cold water. Readily soluble in hydrochloric or acetic acids. Used in the form of acetate or hydrochlorate of morphia.

MORPHIÆ ACETAS

ACETATE OF MORPHIA

Composition.—$C_{17}H_{19}NO_3C_2H_4O_2$.

Preparation.—Acetate of morphia is prepared by decomposing a solution of hydrochlorate of morphia, by ammonia solution, adding dilute acetic acid to the precipitated morphia, and drying at a gentle heat.

Characters and Tests.—It closely resembles the alkaloid, from which it is distinguished by the evolution of an acetous odour on the addition of sulphuric acid.

Actions and Uses.
Doses.
Modes of Application. } See Morphiæ Hydrochloras.

Preparation.—Liquor morphiæ acetas.

MORPHIÆ HYDROCHLORAS

HYDROCHLORATE OF MORPHIA

Synonyms.—Morphiæ murias, muriate of morphia.

Composition.—$C_{17}H_{19}NO_3 \cdot HCl \cdot 3H_2O$.

Mode of Preparation.—Take of—

Opium sliced	1 pound.
Chloride of Calcium	¾ ounce,
Purified animal charcoal . . .	¼ ounce.
Diluted hydrochloric acid .	2 fluid ounces, or a sufficiency
Solution of Ammonia . . .	of each,
Distilled water . : . . .	a sufficiency

Macerate the opium for twenty-four hours with two pints of the water and decant. Macerate the residue for twelve hours with two pints of the water, decant, and repeat the process with the same quantity of the water, subjecting the insoluble residue to strong pressure. Unite the liquors, evaporate in a water-bath, to the bulk of one pint, and strain through calico. Pour in now the chloride of calcium, previously dissolved in four fluid ounces of distilled water, and evaporate until the solution is so far concentrated that upon cooling it becomes solid. Envelop the mass in a double fold of strong calico, and subject it to powerful pressure, preserving the dark fluid which exudes. Triturate the squeezed cake with about half a pint of boiling distilled water, and, the whole being thrown upon a paper filter, wash the residue well with boiling distilled water. The filtered fluids having been evaporated as before, cooled and solidified, again subject the mass to pressure; and, if it be still much coloured, repeat the process a third time, the expressed liquids being always preserved. Dissolve the pressed cake in six fluid ounces of boiling distilled water; add the animal charcoal, and digest for twenty minutes; filter, wash the filter and charcoal with boiling distilled water, and to the solution thus obtained add the solution of ammonia in slight excess.

Let the pure crystalline morphia, which separates as the liquid cools, be collected on a paper filter, and washed with cold distilled water until the washings cease to give a precipitate with solution of nitrate of silver acidulated by nitric acid.

From the dark liquids expressed in the above process an additional product may be obtained by diluting them with distilled water, precipitating with solution of potash added in considerable excess, filtering, and supersaturating the filtrate with hydrochloric acid. This acid liquid, digested with a little animal charcoal, and again filtered, gives, upon the addition of ammonia, a small quantity of pure morphia.

Diffuse the pure morphia, obtained as above, through two fluid ounces of boiling distilled water placed in a porcelain capsule, kept hot, and add, constantly stirring, the diluted hydrochloric acid, proceeding with caution, so that the morphia may be entirely dissolved, and a neutral solution obtained. Set aside to cool and crystallize. Drain the crystals and dry them on filtering paper. By further evaporating the mother liquor, and again cooling, additional crystals are obtained. Water extracts from opium the meconate and sulphate of morphia and codeia; a part of the narcotia, of the meconin, of the narcein, and of the thebaia; the brown acid extractive, and a part of the resin, and of the fat oil. When chloride of calcium is added to infusion of opium, meconate with a little sulphate of lime, and some resinous colouring matter, are precipitated, while the hydrochlorates of morphia and of codeia are left in solution. A watery solution of the impure crystals obtained by evaporation is then decomposed by ammonia by which the morphia is precipitated, while codeia and hydrochlorate of ammonia are left in solution. The morphia is dissolved in hydrochloric acid, and the solution of the hydrochlorate decolorised by charcoal.

Characters and Tests.—White, flexible, acicular prisms of a silky lustre, not changed by exposure to the air, soluble in water and alcohol. The aqueous solution gives a white, curdy precipitate with nitrate of silver, and a white one with potash, which is redissolved when an excess of the alkali is added. Moistened with strong nitric acid it becomes orange-red, and with solution of perchloride of iron greenish-blue. Entirely destructible by heat, leaving no residue. Twenty grains of the salt dissolved in half an ounce of warm water, with ammonia added in the slightest possible excess, give on cooling a crystalline precipitate which when washed with a little cold water, and dried by exposure to the air, weigh 15 to 18 grains.

Actions and Uses.—*Internally*:—Anodyne, sedative, soporific and antispasmodic. *Externally*:—To relieve neuralgia, tetanus, acute rheumatism and enteritis in horses.

Doses.—HORSE, 3 to 10 grains.—CATTLE, 3 to 10 grains.—SHEEP, ½ to 2 grains.—PIG, ½ to 2 grains.—DOG, ⅛ to ½ grain.

Modes of Application.—*Internally*:—In the form of bolus, or dissolved in water acidulated with a little hydrochloric acid. *Externally*:—By hypodermic injection. See Liquor morphiæ acetatis.

Antidotes.—See opium.

MUCILAGO ACACIÆ

MUCILAGE OF GUM ACACIA

Take of—

Gum Acacia,* in small pieces . .	13 ounces.
Distilled Water	1 pint.

Put the gum and water into a covered earthenware jar, and stir them frequently until the gum is dissolved. If necessary, strain the solution through muslin.

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* The much cheaper and equally efficacious dextrin, or British gum, may be substituted for Gum Acacia in this preparation.

Actions and Uses.—Demulcent and emollient to allay irritation of the alimentary canal, whether caused by disease or poison; also injected into the bladder in inflammation of that organ and of the kidneys.

Dose.—*Ad libitum.*

MUCILAGO AMYLI*

MUCILAGE OF STARCH

Take of—

Starch, in powder	½ ounce.
Water	1 pint.

Triturate the starch with the water, gradually added, then boil for a few minutes, constantly stirring.

Use.—In preparing enemas.

MYLABRIS

MYLABRIS

Synonyms.—Mylabris Cichorii; Chinese Blistering Fly.

Natural Order.—*Coleoptra.*

Composition.—Its vesicant properties are due to the presence of cantharidin.

Characters.—An insect, found on the flowers of the succory plant in India and China. About an inch and a quarter in length; sheath-wings black, each presenting anteriorly two almost quadrate, brownish-yellow spots; behind these, two brownish-yellow bands, each of which equals about one sixth of the length of the sheath-wings.

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* For most veterinary purposes ordinary gruel may be used instead of this preparation.

Actions and Uses.—Its physiological actions are the same as those of cantharides, except that it is said not to affect the kidneys when topically applied. Employed in the form of Unguentum Mylabridis as a counter-irritant and vesicant.

Preparation.—Unguentum Mylabridis.

MYRRHA

MYRRH

A gum-resinous exudation from the stem of *Balsamodendron Myrrha.* Collected in Arabia Felix and Abyssinia.

Natural Order.—*Amyrdaceæ.*

Composition.—Its medicinal activity depends upon the resin and volatile oil which it contains; they are both perfectly soluble in rectified spirit, but only partially so in proof spirit.

Characters.—In irregularly shaped tears or masses, varying much in size, slightly translucent, of a reddish-yellow or reddish-brown colour; fractured surface, irregular, and somewhat oily; odour agreeable and aromatic; taste acrid and bitter.

Actions and Uses.—*Internally:*—Stimulant and tonic. It is sometimes given in dyspepsia depending upon debility, but recommended chiefly for cattle in cases of chronic cough; for the latter purpose it is usually combined with opium. *Externally:*—As an excitant and deodorizer to wounds and indolent and fetid ulcers.

Doses.—Horse, 2 to 4 drachms.—Cattle, ½ to 1 ounce.—Sheep, 1 to 2 drachms.—Pig, 1 to 2 drachms.—Dog, 10 to 30 grains.

Modes of Application.—*Internally*:—In the form of bolus; pill; Tinctura Myrrhæ; Tinctura Aloës composita. *Externally*:—Powder; Tinctura Myrrhæ; Tinctura Aloës composita.

Preparations.—Tinctura Aloës composita; Tinctura Myrrhæ.

NUX VOMICA

NUX VOMICA

The seeds of *Strychnos Nux Vomica*. Imported from the East Indies.

Natural Order.—*Soganiaceæ.*

Composition.—Contains the highly poisonous alkaloid strychnia, $C_{21} H_{22} N_2 O_2$, and an almost inert alkaloid, brucia, in combination with igasuric acid.

Characters.—Nearly circular and flat, about an inch in diameter, umbilicated and slightly convex on one side; externally of an ash-grey colour, thickly covered with short satiny hairs; internally translucent, tough and horny; taste intensely bitter; inodorous.

Actions and Uses.—In excessive doses, highly poisonous; in medicinal doses, it is given as a nervous stimulant in general paralysis, paraplegia, and amaurosis; also as a tonic in chorea and affections of the alimentary canal, *e.g.* dyspepsia, dysentery, colic arising from lead poisoning, &c.

Doses.—Horse, 20 to 40 grains.—Cattle, 20 to 40 grains.—Sheep, 5 to 15 grains.—Pig, 5 to 15 grains.—Dog, ½ to 3 grains.

Modes of Application.—The powdered seed made into a bolus or pill; Extractum Nucis Vomicæ, or Tinctura Nucis Vomicæ.

Antidotes.—Decoctum Tabaci.

Preparations.—Strychnia; Tinctura Nucis Vomicæ.

OLEUM ANISI

OIL OF ANISE

Composition.—A mixture of two distinct volatile oils, one of which solidifies at temperatures below 50° F., and is named *anethol* or *anise camphor*, $C_{10}H_{12}O$, while the other remains fluid at all temperatures. The constitution of the latter oil is not known, but it is believed to be isomeric with oil of turpentine.

Mode of Preparation.—In Europe by distilling the fruit of *Pimpinella Anisum*, and in China the fruit of *Illicium anisatum*, with water.

Characters.—Colourless or pale yellow, with the odour of anise, and a warm sweetish taste. Completely volatilized by heat; concretes at 50° C.

Uses.—For flavouring medicines, especially masses; also for destroying pediculi on pet dogs and other small animals.

OLEUM CAJEPUT

CAJEPUT OIL

Composition.—According to Blanchet, the composition is $C_{10}H_{18}O$.

Mode of Preparation.—By distilling the leaves of *Melaleuca minor*. Imported from Batavia and Singapore.

Characters.—Pale bluish or myrtle-green colour. It is transparent, limpid, of a strong penetrating agreeable odour, resembling that of camphor, rosemary, and cardamoms combined, and of a warm aromatic camphoraceous taste, succeeded by a sensation of coldness in the mouth. Specific gravity varies from 0·914 to 0·930. Oil of Cajeput is soluble in alcohol.

Actions and Uses.—*Internally*:—A powerful diffusible stimulant, antispasmodic, and diaphoretic. Useful in painful spasmodic affections of the stomach, and in flatulent colic. *Externally*:—As an application in chronic rheumatism.

Doses.—

Modes of Application.—*Internally*:—In the form of an emulsion. *Externally*:—Mixed with olive oil.

OLEUM CAMPHORATA

CAMPHORATED OIL

Take of—

Camphor	1 part
Olive Oil	4 parts.

Dissolve the camphor in the oil.

Uses.—Discutient and anodyne for tumours, bruises, and chronic sprains.

OLEUM CANTHARIDIS

Take of—

Cantharides, in powder . . .	1 ounce.
Olive Oil	8 fluid ounces.

Digest over a water bath for two or three hours, and filter for use.

Use.—To maintain the action of blisters.

OLEUM CROTONIS

CROTON OIL

Composition.—Principally stearin, palmitin, and two compounds allied to olein; myristic, lauric, crotonic, and angelic acids have also been obtained from it. Its irritant effects upon the skin are attributed to a body called crotonal, $C_9H_{14}O_2$; but the exact nature of its purgative principle is still unknown.

Mode of Preparation.—By pressure from the kernels of the seeds of *Croton tiglium;* belonging to the natural order *Euphorbiaceæ.*

Characters.—Fixed, viscid; colour brownish-yellow; taste acrid; odour faintly nauseous. The oil expressed in England is soluble in an equal volume of rectified spirit of wine. Indian croton oil, agitated with cold rectified spirit, forms a milky looking emulsion, which becomes transparent on the application of heat, but which, on cooling and standing, allows the oil to separate and subside. Croton oil is readily dissolved by sulphuric ether and by the fixed and volatile oils.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses, drastic purgative. Given in obstinate constipation; in torpidity of the bowels dependent on a disordered state of the nervous system, as in tetanus and parturient apoplexy; to produce copious fluid evacuations and excite extensive counter-irritation in passive dropsies and in local inflammation in parts remote from the alimentary canal; in anasarcous swellings and effusions into cavities, when purgatives are admissible; and in affections of the kidneys when it is desirable to avoid irritating them. Also valuable for the horse in cases in which neither a bolus nor a draught can be given, as when the animal is unmanageable or unable to swallow. *Externally*:—Vesicant and counter-irritant. Applied to all animals, but especially to cattle, in bronchitis, pleurisy, pneumonia, chronic rheumatism, and glandular and other indolent swellings.

Doses.—HORSE, 15 to 25 minims.—CATTLE, 20 to 40 minims.—SHEEP, 2 to 5 minims.—PIG, 2 to 5 minims.—DOG, ½ to 3 minims.

Modes of Application.—*Internally*:—Mixed with linseed meal so as to form a bolus, dissolved in olive or linseed oil or put into the animal's mash or food. The oil may be placed upon the tongue of horses that refuse their provender, or that are vicious or incapable of swallowing. To remove constipation in cattle the oil is frequently given in conjunction with sulphate of magnesia or calomel. *Externally*:—One part of croton oil mixed with from four to eight parts of soap liniment, or Linimentum Terebinthinæ et Olei Crotonis.

Antidotes.—Where available, an emetic of sulphate of copper, demulcent drinks, and opium to check the purgation.

Preparation.—Linimentum Terebinthinæ compositum.

OLEUM JUNIPERI

OIL OF JUNIPER

Composition.—$C_{10}H_{16}$.

Mode of Preparation.—In Britain, by distilling the unripe fruit of *Juniperis communis,* belonging to the natural order *Coniferæ,* with water.

Characters.—Colourless or pale greenish-yellow, sweetish odour, and warm aromatic taste. Completely volatilized by heat.

Actions and Uses.—Stomachic and diuretic. Given as a diuretic.

Doses.—Horse, 1 drachm.—Cattle, 2 drachms.—Sheep, 15 minims.—Pig, 10 minims.—Dog, 2 to 5 minims.

Mode of Application.—Suspended in water or some mucilaginous drink.

OLEUM LINI

LINSEED OIL

Composition.—Linolein, palmitin, and possibly stearin.

Mode of Preparation.—By expression, without heat, from linseed, belonging to the natural order *Linaceæ.*

Characters.—Fixed, viscid, yellow, faint odour, and oleaginous taste.

Actions and Uses.—*Internally*:—Nutritive, cathartic, and emollient; chiefly employed, either alone or conjoined with sulphate of magnesia, as a laxative for cattle and sheep. Its activity may be increased, if desirable, by the addition of croton oil. Given in cases of intestinal irritability arising from natural causes, or from the action of poison; in colic and diarrhœa, where saline and other vegetable cathartics have proved inactive, or where their repetition is inexpedient; to give relief in cases of choking; also injected into the bladder or rectum to allay irritation. *Externally*:—In skin affections, as an emollient to hard and dry surfaces, and as a soothing application in cases of cutaneous and other superficial irritability. Likewise often used in the preparation of liniments instead of the non-siccative, and consequently preferable, olive oil.

Doses.—HORSE, 1 to 2 pints.—CATTLE, 1 to 2 pints.—SHEEP, 3 to 6 fluid ounces.—PIG, 3 to 6 fluid ounces.—DOG, 1 to 3 fluid ounces.

OLEUM MORRHUÆ

COD-LIVER OIL

Synonym.—Oleum Jecoris Aselli.

Composition.—Chiefly consists of olein, palmitin, and stearin, with small quantities of free butyric and acetic acids, biliary constituents, gaduine and other peculiar substances, iodine, bromine, sulphur, free (?) phosphorus, and about one per cent. of mineral salts.

Mode of Preparation.—Although directed by the 'British Pharmacopœia' to be obtained from the cod, *Gadus morrhua*, it is also procured from other allied species, *e.g.* ling, *Gadus lota*; the dorse, *Gadus cellarias*; the torsk, *Gadus* *brosma*, &c., belonging to the natural order *Acipenier.* The livers are exposed to the sun and allowed to putrefy; the oil runs from them, and is collected in vessels placed for its reception. Imported principally from Newfoundland and the north of England.

Characters.—Fixed, viscid, yellow colour, faint odour, and oleaginous taste.

Actions and Uses.—Nutritive and alterative in debility accompanied with emaciation, chronic rheumatism, scrofula, phthisis pulmonalis and other diseases affecting the respiratory organs, chronic skin affections, and distemper in dogs.

Doses.—HORSE, 8 fluid ounces.—CATTLE, 8 fluid ounces. —SHEEP, 2 to 4 fluid ounces.—PIG, 2 to 4 fluid ounces.— —DOG, ¼ to 1 fluid ounce.

Twice a day for some considerable period, and gradually increased to double the dose originally given.

Modes of Application.—Administered alone or in milk or gruel, flavoured (if necessary) with an aromatic.

OLEUM OLIVÆ*

OLIVE OIL

Composition.—Chiefly olein and palmatin.

Mode of Preparation.—In the south of Europe by pressing the fleshy portion or pericarp of the ripe fruit of the olive, *Olea Europæa*, belonging to the natural order *Oleacæ*, in a mill.

Characters.—Fixed, pale-yellow colour; scarcely any odour; and a bland oleaginous taste. It partially congeals at about 36°F.

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* Linseed oil, rape oil, and whale oil, are frequently used as substitutes for olive oil in veterinary pharmacy.

Actions and Uses.— } Same as Oleum Lini.
Doses.— }

OLEUM PALMÆ

PALM OIL

Synonym.— Palm Butter.

Composition.—Tripalmitin, $C_3H_5(C_{16}H_{31}O_2)_3$, with a small quantity of olein. $C_3H_5(C_{18}H_{33}O_2)_3$.

Mode of Preparation.—The kernels of the fruit of certain kinds of palm (*Cocos butyracea* or *Arvira elais*, or both) are crushed and heated with water. The oil rises to the surface in the liquid condition, and is removed.

Characters.—In this country it usually has the consistency of butter. The fresh oil melts at about 76° F. Colour usually yellow, which can be removed by bleaching; odour peculiar and agreeable—said to resemble that of violets.

Actions and Uses.—Substitute for lard as an emollient, and in the preparation of ointments.

OLEUM RICINI

CASTOR OIL

Composition.—Principally ricinolein, with other glycerides.

Mode of Preparation.—That imported from the West Indies, and the finer qualities from the East Indies, are procured by submitting the seeds of *Ricinis communis*, belonging to the natural order *Euphorbiaceæ*, after the removal of their coats, to pressure, with or without heat. Most of the East Indian oil, however, is obtained by boiling the seeds in water, drying and crushing them, and again boiling them until the oil separates and floats on the surface. Cold-drawn castor oil is considered to possess the finest quality.

Actions and Uses.—Cathartic, chiefly for the dog. For other animals linseed oil is usually substituted as an oleaginous purgative.

Doses.—HORSE, 1 to 1½ pint.—CATTLE, ¼ to 1½ pint.—SHEEP, 2 to 3 fluid ounces.—PIG, 2 to 3 fluid ounces.—DOG, ½ to 2 fluid ounces.

Modes of Application.—Usually administered alone. It is, however, sometimes given with linseed or olive oil, or gruel and aromatics, to diminish its irritant effects; to increase its cathartic activity it is combined with small doses of oil of turpentine or of croton.

Preparations.—Collodium Flexile; Mistura Ricini.

OLEUM TEREBINTHINÆ

OIL OF TURPENTINE

Synonym.—Spirits of Turpentine, Terebene, &c.

Composition.—$C_{10}H_{16}$.

Mode of Preparation.—The outer bark near the root is removed from *Pinus palustris, Pinus tæda, Pinus pinaster*, as well as from other varieties of pines. Incisions are then made through the inner bark into the wood, from which a mixture of volatile oil and resin (crude or common turpentine) flows into a pit dug in the earth, whence it is transferred to casks. By distillation, with or without water, the volatile oil (oil or spirit of turpentine) is separated from the resin.

Characters.—Volatile, limpid, colourless; strong peculiar odour; pungent and bitter taste. Imported from France and America.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses astringent, stimulant, cathartic, and diaphoretic. Chiefly employed as a diuretic, anti-spasmodic, and anthelmintic. *Externally*:—Vesicant, counter-irritant, stimulant, and digestive. Principally applied to cattle, in conjunction with mustard or ammonia, in the treatment of inflammation of the bowels or lungs, and in chronic rheumatism.

Doses.—*Diuretic*:—HORSE, 4 to 8 fluid drachms.—CATTLE, 4 to 8 fluid drachms.—SHEEP, 10 to 15 minims.—PIG, 10 to 15 minims.

Antispasmodic:—HORSE, 1 to 2 fluid ounces.—CATTLE, 1 to 2 fluid ounces.—SHEEP, 20 to 60 minims.—PIG, 20 to 60 minims.

Anthelmintic:—HORSE,* 2 to 3 fluid ounces.—CATTLE,* 2 to 3 fluid ounces.—SHEEP,* 2 to 4 fluid drachms.—PIG,* 2 to 4 fluid drachms.—DOG,* 1 to 1½ drachm.

Modes of Application.—*Internally*:—Dissolved in linseed, olive, or other fixed oil; beaten into an emulsion with yolk of egg (one yolk to every two drachms of oil of turpentine); or Enema Terebinthinæ. *Externally*:—As a rubefacient or digestive, the oil alone; Linimentum Terebinthinæ; Linimentum Terebinthinæ compositum. As a counter-irritant for cattle, Cataplasma Terebinthinæ composita; for the dog, Cataplasma Terebinthinæ.

Preparations.—Cataplasma Terebinthinæ; Cataplasma

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* Combined with a small dose of castor oil, linseed oil, or solution of aloes.

Terebinthinæ composita; Enema Terebinthinæ; Linimentum Terebinthinæ; Linimentum Terebinthinæ compositum.

OPIUM

OPIUM

Composition.—Contains a large number of alkaloidal and neutral substances, together with a body highly characteristic of opium, termed meconic acid; the most important constituent, however, in relation to medicine is the alkaloid morphia, $C_{17}H_{19}NO_3$.*

Mode of Preparation.—Incisions, by means of an instrument consisting of four or five heart-shaped blades tied together with thread, are made in the unripe capsules of the poppy, *Papaver somniferum*, belonging to the natural order *Papaveraceæ*. A white milky juice exudes from the incisions in drops, and is allowed to remain on the poppy head for twenty-four hours in order that it may thicken. The inspissated exudation is then scraped off, and the different collections stirred together. The opium is finally dried without the aid of artificial heat, usually by exposure to the sun, and made into cakes or masses, which are in most places wrapped in poppy leaves to prevent their adhering to one another. Chiefly imported from Turkey, Egypt, and India.

Characters.—Irregular lumps, weighing from four ounces to two pounds; enveloped in the remains of poppy leaves, and generally covered with the chaffy fruits of a species of Rumex; when fresh, plastic, tearing with an irregular, slightly moist, chestnut-brown surface, shining when rubbed smooth with the finger; peculiar odour and bitter taste.

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* The alkaloid Narcotina was at one time regarded as the stimulating principle of opium, but recent investigations have shown that it possesses neither stimulant nor narcotic qualities.

Actions and Uses.—*Internally*:—In excessive doses, narcotic poison; in medicinal doses, stimulant, sedative, narcotic, anodyne, and antispasmodic. Given in gastritis. diarrhœa, dysentery, enteritis, colic, peritonitis, pleurisy, bronchitis, pneumonia, tetanus, rheumatism, and very many other maladies. *Externally*:—Anodyne to wounds, and blistered and cauterised surfaces; in cases of superficial inflammation of the eye, skin, or joints; and in the treat- of hæmorrhoids.

Doses.—Horse, 1 to 2 drachms.—Cattle, 2 to 4 drachms.—Sheep, 10 to 40 grains.—Pig, 10 to 40 grains, —Dog, ½ to 3 grains.

Modes of Application.—*Internally*:—In the form of bolus, Tinctura Opii, or Tinctura Opii Ætherea; also Enema Opii. Although frequently given alone, it is often combined with belladonna, aconite, tartar emetic, or calomel, when required to act as a sedative; and with chloroform, sulphuric ether, or nitrous ether, when employed as a stimulant or antispasmodic. As an injection, as well as by the mouth,* in enteritis and inflammation of the bladder and kidneys. *Externally*:—Liquor Plumbi Subacetatis et Opii; Linimentum Opii; Tinctura Opii.

Incompatibles.—Lime-water; alkalies, and their carbonates; the acetate of lead; sulphates of iron, zinc, and copper; perchloride of mercury; arsenites of potash and soda; and all vegetable astringents.

Antidotes.—Where possible, empty the stomach by means of emetics or the stomach-pump; administer brandy, ammonia, carbonate of ammonia, or some other stimulant; apply ammonia or strong acetic acid to the nostrils; dash cold water over the body, and endeavour to keep the patient moving about.

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* Two or three times as much opium may be administered *per rectum* as would be given by the mouth.

Preparations.—Enema Opii; Linimentum Opii; Liquor Plumbi Subacetatis et Opii; Pulvis Ipecacuanhæ compositus; Pulvis Opii compositus; Tinctura Opii.

PARAFFINUM

PARAFFIN

Synonym.—Tar-oil Stearin.

Composition.—A mixture of several solid Hydrocarbons.

Mode of Preparation.—Paraffin is found native in the coal-measures, and other bituminous strata constituting the minerals known as fossil wax, ozocerite, &c. It exists also in the state of solution in many petroleum springs, and may be separated by distilling the more volatile portion and exposing the remainder to a low temperature.

Characters and Test.—A colourless, crystalline, fatty substance. Melting at about 113° F. Soluble in ether in all proportions. When melted should dissolve entirely in fixed and volatile oils. Sulphuric acid, chlorine, and nitric acid, below the temperature of 212° F., have no action upon it.

Actions and Uses.—Employed externally. Occasionally used in the manufacture of ointments.

PILULA HYDRARGYRI ET FERRI

PILL OF MERCURY AND IRON

Synonyms.—Mercurial Pill with Iron; Ferruginate Blue Pill.

Preparation.—Take of—

Mercury, pure	2 parts.
Hydrated Peroxide of Iron . . .	1 part.
Confection of Roses	3 parts.

Rub together until the globules of mercury are no longer visible.

Use.—Alterative for the horse.*

Dose.—½ to 1 drachm.

PIMENTA

PIMENTO

Synonym.—Allspice.

The dried unripe berries of the allspice, *Eugenia pimenta*. Imported from the West Indies.

Natural Order.—*Myrtaceæ.*

Composition.—Therapeutic value dependent on the presence of a volatile oil.

Characters.—Of the size of a small pea, rough, crowned with the teeth of the calyx; contains two dark brown seeds; externally brown, internally yellowish; odour and taste hot, aromatic, and peculiar.

Actions and Uses.—Aromatic, carminative, stomachic, and antispasmodic. Given in indigestion, relaxed stomach, flatulency, and in colic. Employed also to disguise the flavour of nauseous medicines.

Doses.—HORSE, 2 to 4 drachms.—CATTLE, 2 to 6 drachms.—SHEEP, ½ to 1 drachm.—PIG, ½ to 1 drachm.—DOG, 10 to 30 grains.

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* If there be any apprehension of this preparation exciting catharsis, it should be combined with opium.

Modes of Application.—In the form of powder, bolus, or Tinctura Pimentæ.

Preparation.—Tinctura Pimentæ.

PIPER NIGRUM

BLACK PEPPER

Natural Order.—*Piperaceæ.*

Composition.—Its medicinal properties are due chiefly to a volatile oil.

Mode of Preparation.—The berries of *Piper nigrum,* before they have all changed to red, are collected, dried, and ground to powder.

Characters.—Small roundish, wrinkled bodies; tegument brownish black, containing a greyish-yellow globular seed (white pepper).

Actions and Uses.—Principally employed as a stomachic and carminative in simple indigestion, and as an aromatic to mask the unpleasant flavour of many medicines.

Doses.—HORSE, 2 drachms.—CATTLE, 3 drachms.—SHEEP, 20 to 40 grains.—Repeated two or three times a day.

Modes of Application.—In the form of bolus, or, preferably, suspended in gruel.

PIX BURGUNDICA

BURGUNDY PITCH

A resinous exudation from the stem of the spruce fir, *Abies excelsa*, belonging to the natural order *Coniferæ* melted and strained. Imported from Switzerland.

Characters.—Hard and brittle, yet gradually taking the form of the vessel in which it is kept; opaque, varying in colour, but generally dull reddish brown; of a peculiar, somewhat empyreumatic perfumed odour, and aromatic taste, without bitterness; free from vesicles; gives off no water when heated.

Actions and Uses.—*Internally*:—Irritant and diuretic. *Externally*:—Rubefacient and digestive; stimulant to sprains; to give support to fractures; and as an adhesive to wounds.

Modes of Application.—*Externally*:—Melted and applied, after the hair of the part has been loosened by the currycomb, to fractures and sprains. As an adhesive, Emplastrum Picis is used.

PIX LIQUIDA

TAR

Synonym.—Wood Tar.

Composition.—Hydrocarbons, methylic alcohol, carbolic acid, acetic acid, resinous bodies, pitch, and many other substances.

Mode of Preparation.—By submitting to destructive distillation the wood of *Pinus sylvestris* and other pines.

Characters.—Thick, viscid, brownish-black liquid, of a well-known peculiar aromatic odour. Water agitated with it acquires a pale brown colour, sharp empyreumatic taste, and acid reaction.

Actions and Uses.—*Externally*:—As an excitant, rubefacient, antiseptic, and deodorizer in the treatment of thrush in the horse, and of broken horns and punctured wounds of the belly and chest of cattle; foot-rot in sheep; and in mange, eczema, impetigo, and other skin affections.[*]

Modes of Application.—In thrush and foot-rot, tar alone is applied to the diseased parts; for broken horns and punctured wounds, the tar should be spread over coarse cloth; for skin affections, Linimentum Olei Picis liquidæ compositum or Linimentum Picis liquidæ is used; and as a common foot ointment for all domesticated animals, Unguentum Picis liquidæ is employed.

Preparations.—Linimentum Olei Picis liquidæ compositum; Linimentum Picis liquidæ; Unguentum Picis liquidæ.

PIX NIGRA

PITCH

Synonym.—Black Pitch.

The black, resinoid, and highly carbonaceous residue which is left when the volatile constitutents of tar are removed by distillation.

Uses.—Mild stimulant in thrush, canker, and sand-crack in horses and foot-rot in sheep. Also used to impart consistency and adhesiveness to plasters and "charges."

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[*] A "*Stopping for Feet*" is made by mixing together—

Tar	2 parts.
Soft Soap	1 part.
Linseed Meal	a sufficiency to impart tenacity to the mixture.

PLUMBI ACETAS

ACETATE OF LEAD

Synonyms.—Lead Acetate; Sugar of Lead.

Composition.—Pb $(C_2H_3O_2)_2 . 3Aq$.

Mode of Preparation.—Take of—

Oxide of Lead (Litharge), in fine powder . . .	24 ounces.
Acetic acid	2 pints, or a sufficiency.
Distilled Water	1 pint.

Mix the acetic acid and the water, add the oxide of lead, and dissolve with the aid of a gentle heat. Filter, evaporate till a pellicle forms, and set aside to crystallize, first adding a little acetic acid should the fluid not have a distinctly acid reaction. Drain and dry the crystals on filtering paper without heat.

$$\underset{\text{Lead Monoxide.}}{PbO} + \underset{\text{Acetic Acid.}}{2HC_2H_3O_2} = \underset{\text{Lead Acetate (Acetate of Lead).}}{Pb(C_2H_3O_2)_2} + \underset{\text{Water.}}{H_2O}$$

In the act of crystallizing the salt unites with three molecules of water.

Characters and Tests.—White crystalline masses, slightly efflorescent; acetous odour, and sweet astringent taste. It dissolves in distilled water, and forms a clear solution, or one which has only a slight milkiness, which disappears on the addition of acetic acid. Its solution in water slightly reddens litmus, gives a yellow precipitate (lead iodide) with potassium iodide, and a white precipitate (lead sulphate) with dilute sulphuric acid, acetic acid being set free and recognisable by its odour; the precipitates by potassium iodide and sulphuric acid indicate the presence of lead, and the elimination of acetic acid shows that the salt is an acetate. Air blown from the lungs through its aqueous solution should not occasion any turbidity, showing its freedom from subacetate.

Actions and Uses.—Sedative and astringent. Seldom employed in veterinary practice; it is, however, occasionally administered in from 1 to 2 drachm doses to the horse in diarrhœa and diabetes insipidus. Principally used in the production of Liquor Plumbi Subacetatis.

Preparations.—Liquor Plumbi Subacetatis.

PLUMBI OXIDUM

OXIDE OF LEAD

Synonyms.—Lead Monoxide; Protoxide of Lead; Litharge.

Composition.—PbO.

Mode of Preparation.—Metallic lead is oxidized by being heated in a current of air.

$$\underset{\text{Lead.}}{2Pb} + \underset{\substack{\text{Oxygen.}\\\text{(from Air).}}}{O_2} = \underset{\substack{\text{Lead}\\\text{Monoxide.}}}{2PbO}$$

Characters and Tests.—Heavy scales, pale brick-red colour, completely soluble without effervescence in diluted nitric and acetic acids, either solution, when neutral, giving a yellow precipitate (lead iodide) with potassium iodide, indicating the presence of lead. Its solution in diluted nitric acid, when saturated with ammonia and filtered, does not exhibit a blue colour, showing that it is free from copper.

Uses.—In preparing Plumbi Acetas and Liquor Plumbi Subacetatis.

PODOPHYLLI RADIX

PODOPHYLLUM ROOT

The dried rhizome of *Podophyllum peltatum*, belonging to the natural order *Ranunculaceæ*. Imported from North America.

Characters.—In pieces of variable length, about two lines thick; mostly wrinkled longitudinally; dark reddish-brown externally, whitish within; breaking with a short fracture; accompanied with pale brown rootlets. Powder yellowish-grey, sweetish in odour, bitterish, subacrid, and nauseous in taste.

Preparation.—Resina Podophylli.

Actions and Uses.—Cholagogue, purgative; used as a substitute for calomel. Experiments have shown that podophyllin is not likely to be serviceable as a purgative for the domesticated animals. It is given to lower the heart's action in acute diseases of the respiratory organs, rheumatism, laminitis, and other inflammatory disorders.

Doses.—As a sedative. HORSE, 1 to 2 drams.—CATTLE, 1 to 2 drams.—DOG, 1 to 2 grains.

Modes of Application.—United with calomel, or potassium nitrate or magnesium sulphate. For dogs it may be administered with calomel, grey powder, or ipecacuanha.

PODOPHYLLI RESINA

RESIN OF PODOPHYLLUM

Take of—

Podophyllum Root, in coarse powder .	1 pound.

Rectified Spirit	3 pints, or a sufficiency.
Distilled Water	a sufficiency.
Hydrochloric Acid	a sufficiency.

Exhaust the Podophyllum by percolation with the spirit; distil over the spirit; slowly pour the liquid remaining after the distillation of the tincture into three times its volume of water, acidulated with one twenty-fourth part of its weight of hydrochloric acid, constantly stirring; let it stand twenty-four hours; collect the resin which falls, wash on a filter with distilled water, and dry in a stove.

Characters and Tests.—A pale, greenish-brown, amorphous powder, soluble in rectified spirit and in ammonia; precipitated from the former solution by water, from the latter by acids. Almost entirely soluble in pure ether.

POTASSA CAUSTICA

CAUSTIC POTASH

Synonyms.—Potassæ Hydras; Potassa Fusa; Potassium Hydrate; Hydrate of Potash.

Composition.—KHO.

Mode of Preparation.—Take of—

Solution of Potash	2 pints.

Boil down the solution of potash rapidly in a silver or clean iron vessel, until there remains a fluid of oily consistence, a drop of which, when removed on a warm glass rod, solidifies on cooling. Pour this into proper moulds, and, when it has solidified, and while it is still warm, put it into a stoppered bottle.

Characters and Tests.—Hard white pencils, very deliquescent, powerfully alkaline and corrosive. A watery solution acidulated by hydrochloric acid gives a yellow precipitate (potassium-platinic chloride) with platinic chloride, indicating the presence of potassium. It should dissolve in diluted nitric acid without effervescence, showing the absence of carbonate, and give but scanty white precipitates with barium chloride and silver nitrate, showing the presence of traces only of sulphate and chloride respectively.

Actions and Uses.—Principally applied as an escharotic to wounds produced by the bites of rabid animals, also for stimulating unhealthy ulcers and inducing suppuration. In consequence of the highly deliquescent nature of this preparation, it has an objectionable tendency to spread beyond the part upon which it is required to act. The use of Soda Caustica is not open to this objection, and, as its escharotic effects rival those of Potassa Caustica, it may be advantageously substituted for the latter agent.

POTASSA SULPHURATA

SULPHURATED POTASH

Synonyms.—Potassii Sulphuretum; Hepar Sulphuris; Sulphide of Potassium; Liver of Sulphur.

Composition.—A mixture of several sulphides, sulphate, and other compounds of potassium.

Mode of Preparation.—Take of—

Carbonate of Potash	10 ounces.
Sublimed Sulphur	5 ounces.

Mix the carbonate of potash and the sulphur in a warm mortar, and having introduced them into a Cornish or Hessian crucible, let them be heated, first gradually, until effervescence has ceased, and finally to dull redness, so as to produce perfect fusion. Let the liquid contents of the crucible be then poured out on a clean flagstone, and covered quickly with an inverted porcelain basin, so as to exclude the air as completely as possible while solidification is taking place. The solid product thus obtained should, when cold, be broken into fragments, and immediately enclosed in a green glass bottle, furnished with an air-tight stopper.

Characters and Tests. — Solid greenish fragments, liver-brown when recently broken, alkaline and acrid to the taste, readily forming with water a yellow solution, which has the odour of sulphuretted hydrogen, and evolves it freely when excess of hydrochloric acid is dropped into it, sulphur being at the same time deposited. The acid fluid, when boiled and filtered, is precipitated yellow (potassium-platinic chloride) by platinic chloride, showing the presence of potassium, and white by barium chloride, indicating the presence of sulphate. About three fourths of its weight are dissolved by rectified spirit.

Actions and Uses. —*Internally:*—In excessive doses, irritant poison; in doses of from half to one drachm to the horse it acts as a stimulant and diaphoretic. Very seldom employed as an internal remedy in this country. *Externally:*—In chronic skin diseases, especially those of a scaly character.

Modes of Application.—*Externally:*—Liquor Potassæ Sulphuratæ; or Unguentum Potassæ Sulphuratæ.

Antidotes.—Solution of chlorinated lime, with an emollient drink.

Preparations.—Liquor Potassa Sulphuratæ; Unguentum Potassæ Sulphuratæ.

POTASSÆ BICARBONAS

BICARBONATE OF POTASH

Synonym.—Potassium-hydrogen Carbonate.

Composition.—$KHCO_3$.

Mode of Preparation.—Take of—

Carbonate of Potash	1 pound.
Distilled Water	2 pints.
Hydrochloric Acid	1½ pint.
Common Water	3 pints.
White Marble, in fragments . .	1 pound, or a sufficiency.

Dissolve the carbonate of potash in the distilled water, and filter the solution into a three-pint bottle, capable of being tightly closed by a cork traversed by a glass tube sufficiently long to pass to the bottom of the fluid. Introduce the marble into another bottle, in the bottom of which a few small holes have been drilled, and the mouth of which is closed by a cork also traversed by a glass tube, and place the bottle in a jar of the same height as itself. Join the two glass tubes, so that the connection is air-tight, by a caoutchouc tube. The cork of the bottle containing the carbonate of potash having been placed loosely, and that of the bottle containing the marble tightly, in its mouth, pour into the jar surrounding the latter bottle the hydrochloric acid, previously diluted with the common water.

When carbonic anhydride has passed through the carbonate of potash solution for two minutes, so as to expel the whole of the air of the apparatus, fix the cork tightly in the neck of the bottle, and let the process go on for a week. At the end of this time numerous crystals of bicarbonate of potash will have formed, which are to be removed, shaken with twice their bulk of cold distilled water, and, after decantation of the water, drained, and dried on filtering paper by exposure to the air. The mother-liquor, filtered if necessary, and concentrated to one half, at a temperature not exceeding 110° F., will yield more crystals. The tube immersed in the solution of carbonate of potash, which should have as large a diameter as possible, may require the occasional removal of the crystals formed within it, in order that the process may not be interrupted.

Potassium Carbonate.		Water.		Carbonic Anhydride.		Potassium-hydrogen Carbonate (Bicarbonate of Potash).
K_2CO_3	$+$	H_2O	$+$	CO_2	$=$	$2HKCO_3$

Characters and Tests.—Colourless right rhombic prisms, not deliquescent; saline, feebly alkaline taste; not corrosive. The addition of diluted hydrochloric acid causes strong effervescence (escape of carbonic anhydride), and forms a solution which gives a yellow precipitate (potassium-platinic chloride). An aqueous solution gives no precipitate with magnesium sulphate, owing to the formation of soluble magnesium-hydrogen carbonate.

Actions and Uses.—In excessive doses, irritant poison; in medicinal doses, antacid and diuretic.

Doses.—Horse, 2 to 6 drachms.—Cattle, 2 to 6 drachms.—Sheep, 40 grains to 2 drachms.—Pig, 40 grains to 2 drachms.—Dog, 10 to 30 grains.

Modes of Application.—In the form of bolus or dissolved in water.

Incompatibles.—Acids; lime water; acetate and chloride of ammonium; most metallic salts, but not sulphate of magnesia.

Antidotes.—Highly diluted acetic acid or vinegar, and linseed or olive oil.

POTASSÆ CARBONAS

CARBONATE OF POTASH

Synonym.—Potassium Carbonate.

Composition.—K_2CO_3, with about sixteen per cent. of water of crystallization.

Mode of Preparation.—In the United States, Canada, Russia, and on the shores of the Baltic, various kinds of wood are burned, and their ashes collected and lixiviated. By lixiviation various potassium compounds, *e.g.* carbonate, sulphate, chloride, phosphate, and silicate, are dissolved, while silica and certain salts of calcium, magnesium, iron, and aluminum remain insoluble. The soluble portions of the ash are evaporated to dryness in iron pots, and deprived of their volatile impurities by being heated in an oven-shaped furnace, whose flame is made to play over the mass. The product thus obtained is impure carbonate of potash, and is commercially termed pearlash. In order to obtain medicinal carbonate of potash, pearlash (to dissolve the carbonate and leave undissolved the other potassium salts) is treated with its own weight of distilled water, and the solution so formed evaporated to dryness, while it is kept briskly agitated.

Characters and Tests.—White crystalline powder, alkaline and caustic to the taste, very deliquescent, readily soluble in water, but insoluble in spirit of wine. It effervesces with diluted hydrochloric acid, showing that it is a carbonate, and forms a solution which gives a yellow precipitate (potassium-platinic chloride) with platinic chloride. Loses about sixteen per cent. of its weight (water) when exposed to a red heat. Its aqueous solution gives a white precipitate (magnesium carbonate) with solution of magnesium sulphate; it is thus distinguished from Potassæ Bicarbonas. If dissolved in water and mixed with excess of nitric acid, it should give but a faint precipitate on the addition of barium chloride and silver nitrate, indicating its almost perfect freedom from sulphates and chlorides.

Actions and Uses.—Same as Potassæ Bicarbonas, but more liable to irritate the stomach and intestines than that agent.

Doses.—HORSE, 2 to 4 drachms.—CATTLE, 2 to 4 drachms.—SHEEP, 30 grains to 1½ drachm.—PIG, 30 grains to 1½ drachm.—DOG, 5 to 20 grains.

Modes of Application.—In the form of bolus, or dissolved in water.

Incompatibles.—Same as with Potassæ Bicarbonas.

Antidotes.—Same as for Potassæ Bicarbonas.

POTASSII BROMIDUM

BROMIDE OF POTASSIUM

Synonym.—Potassium Bromide.

Composition.—KBr.

Mode of Preparation.—Take of—

Solution of Potash	2 pints.
Bromine	4 fluid ounces.
Wood Charcoal, in fine powder .	2 ounces.
Boiling Distilled Water . . .	1½ pints.

Put the solution of potash into a porcelain vessel, and add the bromine in successive portions, with agitation, until the mixture has acquired a brown tint. Evaporate to dryness, reduce the residue to a fine powder, and mix this intimately with the charcoal. Throw the mixture, in small quantities at a time, into a red-hot crucible, and when the whole has been brought to a state of fusion remove the crucible from the fire and turn out its contents.

When fused mass has cooled dissolve it in the water, filter the solution through paper, and set it aside to crystallize. The crystals should be dryed at a gentle heat.

The chemical reaction occurring in this process takes place in two stages:

$$1.\quad \overset{\text{Potassium Hydrate.}}{6KHO} + \overset{\text{Bromine.}}{3Br_2} = \overset{\text{Potassium Bromate.}}{KBrO_3} + \overset{\text{Potassium Bromide.}}{5KBr} + \overset{\text{Water.}}{3H_2O.}$$

$$2.\quad \overset{\text{Potassium Bromide.}}{5KBr} + \overset{\text{Potassium Bromate.}}{KBrO_3} + \overset{\text{Carbon.}}{C_3} = \overset{\text{Potassium Bromide.}}{6KBr} + \overset{\text{Carbonic Oxide.}}{3CO.}$$

Characters and Tests.—In colourless, cubical crystals with no odour, but a pungent, saline taste. Soluble in water, 1 in 2; less soluble in spirit. Its aqueous solution gives a white crystalline precipitate with tartaric acid ($KHC_4H_4O_6$), proving the presence of potassium. When its solution in water is mixed with a little chlorine, chloroform agitated with it, on falling to the bottom, exhibits a red colour (bromine). Silver nitrates will also give a yellowish-white precipitate, insoluble in dilute nitric acid; dissolving sparingly in ammonium hydrate, but readily in potassium cyanide.

Actions and Uses.—As a sedative. It exerts a powerful influence on the generative organs, lowering their functions in a marked degree.

Doses.—HORSE, 2 to 4 drachms.—CATTLE, 2 to 5 drachms.—DOGS, 5 to 20 grains. Repeated when required.

POTASSÆ CHLORAS

CHLORATE OF POTASH

Synonym.—Potassium Chlorate.

Composition.—$KClO_3$.

Mode of Preparation.—Take of—

Carbonate of Potash	20 ounces.
Slaked Lime	53 ounces.
Distilled Water	a sufficiency.
Black Oxide of Manganese . .	80 ounces.
Hydrochloric Acid	24 pints.

Mix the lime with the carbonate of potash, and triturate them with a few ounces of the water, so as to make the mixture slightly moist. Place the oxide of manganese in a large retort or flask, and, having poured upon it the hydrochloric acid, diluted with six pints of water, apply a gentle heat, and conduct the chlorine as it comes over, first through a bottle containing six ounces of water, and then into a large carboy containing the mixture of carbonate of potash and slaked lime. When the whole of the chlorine has come over, remove the contents of the carboy, and boil them for twenty minutes with seven pints of the water, filter and evaporate till a film forms on the surface, and set aside to cool and crystallize. The crystals thus obtained are to be purified by dissolving them in three times their weight of boiling distilled water and again allowing the solution to crystallize.

$$\overset{\text{Calcium Hydrate.}}{5Ca(HO)_2} + \overset{\text{Potassium Carbonate.}}{K_2CO_3} + \overset{\text{Chlorine.}}{6Cl_2} = \overset{\text{Potassium Chlorate (Chlorate of Potash).}}{2KClO_3}$$

$$+ \overset{\text{Calcium Chloride.}}{5CaCl_2} + \overset{\text{Carbonic Anhydride.}}{CO_2} + \overset{\text{Water.}}{5H_2O}$$

The potassium chlorate crystallises out, while the calcium chloride remains in solution.

Characters and Tests.—Colourless rhomboidal crystalline plates, cool saline taste, soluble in cold water 1 in 12, boiling water 1 in 2. Its aqueous solution is not affected by silver nitrate or ammonium oxalate. Strongly heated, it fuses, gives off oxygen gas, and leaves a white residue (potassium chloride), which readily dissolves in water, and produces a solution which yields a white precipitate (silver chloride) with silver nitrate, indicating the presence of chlorine, and a yellow precipitate (potassium-platinic chloride) with platinum chloride, showing the presence of potassium. It explodes when triturated in a mortar with sulphur.*

Actions and Uses.—*Internally*:—Mild stimulant, diuretic, and refrigerant. Given principally in tympanitis and hoven, from its having the power, it is said, of causing a condensation of the gases developed in these complaints. *Externally*:—Stimulant and refrigerant to cancerous and other ill-conditioned ulcers.

Doses.—HORSES, 1 to 2 drachms.—CATTLE, 1 to 2 drachms.—SHEEP, 20 to 40 grains.—PIG, 20 to 40 grains.—DOG, 5 to 15 grains.

Modes of Application.—*Internally*:—Dissolved in water.

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* To avoid accidents, the particles used in performing this experiment should not be larger than a pin's head.

Externally:—In the form of Liquor Potassæ Chloratis compositus.

Preparation.—Liquor Potassæ Chloratis compositus.

POTASSÆ NITRAS

NITRATE OF POTASH

Synonyms.—Potassium Nitrate; Nitre; Saltpetre.

Composition.—KNO_3.

Mode of Preparation.—In India and other hot climates putrefying organic matter is naturally, and in some parts of Europe it is artificially, associated with alkaline and earthy carbonates, together with other materials which render the mass porous. Under these conditions the ammonia arising from the substances undergoing putrefaction is transformed into nitric acid at the expense of atmospheric oxygen.

$$\overset{\text{Ammonia.}}{NH_3} + \overset{\text{Oxygen.}}{2O_2} = \overset{\text{Nitric acid.}}{HNO_3} + \overset{\text{Water.}}{H_2O}$$

The nitric acid thus formed is converted into calcium and potassium nitrates by contact with calcium and potassium carbonates.

$$1.\quad \overset{\substack{\text{Nitric}\\\text{Acid.}}}{2HNO_3} + \overset{\substack{\text{Calcium}\\\text{Carbonate.}}}{CaCO_3} = \overset{\substack{\text{Calcium}\\\text{Nitrate.}}}{Ca(NO_3)_2} + \overset{\substack{\text{Carbonic}\\\text{Anhydride.}}}{CO_2} + \overset{\text{Water.}}{H_2O}$$

$$2.\quad \overset{\substack{\text{Nitric}\\\text{Acid.}}}{2HNO_3} + \overset{\substack{\text{Potassium}\\\text{Carbonate.}}}{K_2CO_3} = \overset{\substack{\text{Potassium}\\\text{Nitrate}\\\text{(Nitrate of}\\\text{Potash).}}}{2KNO_3} + \overset{\substack{\text{Carbonic}\\\text{Anhydride.}}}{CO_2} + \overset{\text{Water.}}{H_2O}$$

Soil containing nitrates is known as *nitre-* or *saltpetre-earth,* and is the source of large quantities of the nitrate of potash used in medicine and in the arts. The nitre-earth is lixiviated, and the watery solution obtained is mixed with solution of potassium carbonate, to convert any calcium nitrate into the corresponding potassium salt.

Calcium Nitrate.		Potassium Carbonate.		Potassium Nitrate (Nitrate of Potash).		Calcium Carbonate.
$Ca(NO_3)_2$	$+$	K_2CO_3	$=$	$2KNO_3$	$+$	$CaCO_3$

By decantation or filtration a clear solution is procured, which, on evaporation, deposits nitrate of potash in a crystalline state. The salt is purified by solution and careful recrystallization.

Characters and Tests.—White crystalline masses or fragments of striated six-sided prisms, colourless; peculiar cool saline taste. Soluble in cold water 1 in 4 parts, boiling water 1 in 2½ parts. Thrown on the fire or red-hot charcoal, deflagration takes place; warmed in a test-tube with sulphuric acid and metallic copper, red fumes (nitric peroxide) are evolved; these two reactions show that the salt is a nitrate. Its aqueous solution, acidulated with hydrochloric acid, gives a yellow precipitate (potassium-platinic chloride) with platinic chloride, indicating the presence of potassium. Its aqueous solution should not be affected by barium chloride or silver nitrate, proving its freedom from sulphates and chlorides respectively.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses, diuretic febrifuge, and refrigerant. *Externally*:—Stimulant to unhealthy wounds.

Doses.—Horse, 2 to 4 drachms.—Cattle, 2 to 4 drachms.—Sheep, ½ to 1 drachm.—Pig, ½ to 1 drachm.—Dog, 5 to 10 grains.

Modes of Application.—*Internally*:—As a febrifuge, it is best given, when possible, in the form of bolus; as a diuretic, it is administered in solution in water. Where nitre is used as a refrigerant, the solution should not be made until just before it is to be given. *Externally*:—In the form of Liquor Potassæ Nitratis.

Incompatibles.—Sulphuric acid and sulphates.

Preparations.—Liquor Potassæ Nitratis; Liquor Ammoniii Chloridi et Potassæ Nitratis.

POTASSÆ PERMANGANAS

PERMANGANATE OF POTASH

Synonym.—Potassium Permanganate.

Composition.—$K_2Mn_2O_8$.

Mode of Preparation.—Take of—

Caustic Potash	5 ounces.
Black oxide of Manganese, in fine powder	4 ounces.
Chlorate of Potash	3½ ounces.
Diluted Sulphuric Acid	a sufficiency.
Distilled Water	2½ pints.

Finely pulverize the chlorate of potash in a perfectly clean mortar, and mix it with the oxide of manganese;* put the mixture into a porcelain basin, and add to it the caustic potash, previously dissolved in four ounces of the water. Evaporate to dryness, stirring diligently to prevent spurting. Pulverize the residual mass, put it into a Hessian or Cornish crucible, and expose it to a dull red heat for an hour, or till it has assumed the condition of a semi-fused green mass (potassium manganate). When cool, pulverize it, and boil it with a pint and a half of the water, for the purpose of converting it into permanganate. Let the insoluble matter (manganese dioxide) subside, decant the fluid, boil again with half a pint of the water, again decant, neutralize the united liquors accurately with the diluted sulphuric acid, and evaporate till a pellicle forms. Set aside to cool and crystallize. Drain the crystalline mass, boil it in six ounces of the water, and strain through a funnel, the throat of which is lightly obstructed by a little asbestos. Allow the fluid to cool and crystallize, drain the crystals, and dry them by placing them under a bell-jar over a vessel containing sulphuric acid.

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* The mixture should be effected by stirring with a spatula; if the manganese and chlorate be ground together with a pestle a dangerous explosion may occur.

The chemical reactions occurring in this process take place in two stages:—

$$1.\ \overset{\substack{\text{Manganese}\\ \text{Dioxide.}}}{3MnO_2} + \overset{\substack{\text{Potassium}\\ \text{Chlorate.}}}{KClO_3} + \overset{\substack{\text{Potassium}\\ \text{Hydrate.}}}{6KHO} = \overset{\substack{\text{Potassium}\\ \text{Manganate.}}}{3K_2MnO_4}$$

$$+ \overset{\substack{\text{Potassium}\\ \text{Chloride.}}}{KCl} + \overset{\text{Water.}}{3H_2O}$$

$$2.\ \overset{\substack{\text{Potassium}\\ \text{Manganate.}}}{3K_2MnO_4} + \overset{\text{Water.}}{2H_2O} = \overset{\substack{\text{Potassium}\\ \text{Permanganate}\\ \text{(Permanganate}\\ \text{of Potash).}}}{K_2Mn_2O_8} + \overset{\substack{\text{Manganese}\\ \text{Dioxide.}}}{MnO_2}$$

$$+ \overset{\substack{\text{Potassium}\\ \text{Hydrate.}}}{4KHO}$$

The diluted sulphuric acid is added to neutralize the potassium hydrate liberated in the second reaction.

Characters and Tests.—Dark purple, prismatic crystals, with a sweet, astringent taste. Completely dissolved by cold water, forming a rich purple solution.

Actions and Uses.—Applied as an excitant and deodorizer to cancerous and ill-conditioned wounds, and in the treatment of certain skin affections. Principally employed as a deodorizer and disinfectant.

Modes of Application.—To fetid wounds and ulcers in the form of Liquor Potassæ Permanganatis. For ordinary deodorizing and disinfecting purposes, mix a wine-glassful of Condy's fluid (commercial potassium permanganate) with a pailful of water, and well sprinkle it, or place it in dishes, about the room, stable, &c. In the case of an offensively smelling drain the above mixture should be poured down it.

Preparation.—Liquor Potassæ Permanganatis.

POTASSÆ PRUSSIAS FLAVA

YELLOW PRUSSIATE OF POTASH

Synonyms.—Potassium Ferrocyanide; Ferrocyanide of Potassium.

Composition.—$K_4FeC_6N_6 . 3Aq$, or $K_4FeCy_6 . 3Aq$.

Mode of Preparation.—Cuttings of horns, skins, hoofs, and dry refuse animal matter of various kinds, are fused at a red heat in an iron vessel with potassium carbonate and scraps of iron. The resulting mass is treated with hot water and filtered. On evaporation the filtrate deposits the ferrocyanide which is purified by recrystallization. Carbon and nitrogen from the animal matter and potassium from the potassium carbonate unite with the iron to form potassium ferrocyanide.

Characters and Tests.—Yellow crystals derived from the octohedron, permanent in the air, soluble in water, insoluble in alcohol. The aqueous solution gives a deep blue precipitate (ferric ferrocyanide*), with a ferric salt, a precipitate which is at first white (potassio-ferrous ferrocyanide†), then light blue, and finally, by exposure to the air, dark blue,‡ with a ferrous salt; and a reddish-brown precipitate (cupric ferrocyanide) with cupric sulphate. Heated with diluted sulphuric acid, hydrocyanic acid vapours are evolved.

Use.—For preparing Acidum Hydrocyanicum dilutum.

POTASSÆ SULPHAS

SULPHATE OF POTASH

Synonym.—Potassium Sulphate.

Composition.—K_2SO_4.

Mode of Preparation.—Hydrogen-potassium sulphate, which is left in the retort in the preparation of nitric acid, is dissolved in water and neutralized by potassium carbonate. By evaporating the solution the salt is thrown down, and by recrystallization it is purified.

Hydrogen-Potassium Sulphate.		Potassium Carbonate.		Potassium Sulphate.		Carbonic Anhydride.		Water.
$2HKSO_4$	$+$	C_2CO_3	$=$	$2K_2SO_4$	$+$	CO_2	$+$	H_2O

Use.—In the preparation of Pulvis Ipecacuanhæ compositus, to facilitate the intimate mixture, and to prevent the agglutination, of the ingredients.

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* Fe_7Cy_{18} or $Fe_4Fe_3Cy_{18}$. This compound, plus 18Aq., constitutes Prussian Blue.

† $K_2Fe_2Cy_6$.

‡ Contact with air causes the ferrous to become a ferric salt by oxidation, and the consequent transformation of white potassio-ferrous ferrocyanide into dark blue ferric ferrocyanide.

POTASSII IODIDUM

IODIDE OF POTASSIUM

Synonym.—Potassium Iodide.

Composition.—KI.

Mode of Preparation.—Take of—

Solution of Potash	1 gallon.
Iodine	29 ounces, or a sufficiency.
Wood Charcoal, in fine powder .	3 ounces.

Put the solution of potash into a glass or porcelain vessel, and add the iodine in small quantities at a time, with constant agitation, until the solution acquires a permanent brown tint. Evaporate the whole to dryness in a porcelain dish, pulverize the residue (a mixture of potassium iodide and iodate), and mix it intimately with the charcoal. Throw the mixture, in small quantities at a time, into a red-hot iron crucible, and, when the whole has been brought to a state of fusion, remove the crucible from the fire and pour out its contents.

When the fused mass (impure potassium iodide) has cooled, dissolve it in two pints of boiling distilled water, filter through paper, wash the filter with a little boiling distilled water, unite the liquids, evaporate the whole till a film forms on the surface, and set it aside to cool and crystallize. Drain the crystals, and dry them quickly with a gentle heat. More crystals may be obtained by evaporating the mother-liquor and cooling. The salt should be kept in a stoppered bottle. Two decompositions take place in this process:—

$$1.\ \overset{\substack{\text{Potassium}\\ \text{Hydrate.}}}{6HKO} + \overset{\text{Iodine.}}{3I_2} = \overset{\substack{\text{Potassium}\\ \text{Iodide.}}}{5KI} + \overset{\substack{\text{Potassium}\\ \text{Iodate.}}}{KIO_3} + \overset{\text{Water.}}{3H_2O}$$

$$2.\ \overset{\substack{\text{Potassium}\\ \text{Iodide.}}}{5KI} + \overset{\substack{\text{Potassium}\\ \text{Iodate.}}}{KIO_3} + \overset{\text{Carbon.}}{C_3} = \overset{\substack{\text{Potassium}\\ \text{Iodide.}}}{6KI} + \overset{\substack{\text{Carbonic}\\ \text{Oxide.}}}{3CO}$$

Characters and Tests.—Colourless, generally opaque, cubic crystals, readily soluble in water, less so in spirit of wine. It commonly has a feebly alkaline reaction. Its solution mixed with mucilage of starch gives a blue colour on the addition of a minute quantity of solution of chlorine (to set free iodine), thus proving that the salt is an iodide. Its aqueous solution mixed with solution of tartaric acid or hydrogen-sodium tartrate, furnishes a crystalline precipitate (hydrogen-potassium tartrate), indicating the presence of potassium.

Silver nitrate gives, with an aqueous solution of the salt, a yellowish-white precipitate (silver iodide), which, when agitated with ammonia, yields by subsidence a clear liquid, in which excess of nitric acid should cause no turbidity, showing the absence of chlorides.

Actions and Uses.—*Internally:*—In excessive doses, irritant poison; in medicinal doses, alterative, deobstruent, and diuretic. Given in scrofula, enlargement of the lymphatic glands, periostitis, articular rheumatism, and dropsy. *Externally:*— To promote the absorption of tumours and other abnormal growths. Also employed as a solvent for iodine, which it strongly resembles in therapeutic action.

Doses.—HORSE, 1 to 2 drachms.—CATTLE, 1 to 3 drachms.—SHEEP, 20 grains to 1 drachm.—PIG, 20 grains to 1 drachm.—DOG, 1 to 5 grains. Repeated two or three times a day.

Modes of Application.—*Internally:*—In the form of bolus, or dissolved in water. *Externally*:—Unguentum Potassii Iodidi; Unguentum Iodidi compositum.

Incompatibles.—Acids, and Spiritus Ætheris Nitrosi.

Preparations.—

Linimentum Iodi comp.
Liquor Iodi et Potassii Iodidi.
Tinctura Iodi;
Unguentum Iodi;
Unguentum Iodi comp.

PULVIS ANTIMONIALIS

ANTIMONIAL POWDER

Synonym.—Factitious James's Powder.

Take of—

Oxide of Antimony	1 ounce.
Phosphate of Lime	2 ounces.

Actions and Uses.—Similar to those of, but not so likely to cause local irritation as, tartarated antimony. Employed as a febrifuge and diaphoretic for the dog.

Doses.—3 to 10 grains.

PULVIS FERRI SULPHATIS COMPOSITUS

COMPOUND POWDER OF SULPHATE OF IRON

Take of—

Sulphate of Iron, in powder .	1 to 1½ drachm.
Gentian, in powder	4 drachms.*

Mix.

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* If it be thought desirable, from 30 to 40 grains of ground ginger may be added to this powder.

This mixture forms one dose for the horse, to which animal it is given as a tonic, sprinkled over his food.

PULVIS IPECACUANHÆ COMPOSITUS

COMPOUND POWDER OF IPECACUANHA

Synonym.—Factitious Dover's Powder.

Take of—

Ipecacuanha, in powder	1 ounce.
Opium, in powder	1 ounce.
Sulphate of potash, in powder . .	8 ounces.

Mix thoroughly, pass the powder through a fine sieve, and finally rub it lightly in a mortar. Keep it in a stoppered bottle.

Actions and Uses.—Given to the dog as a nauseant, sedative, and diaphoretic, in from 5 to 15 grain doses, repeated four or five times a day.

PULVIS OPII COMPOSITUS

COMPOUND POWDER OF OPIUM

Take of—

Opium . . . . Galls . . . . Pimento . . . . Carbonate of Soda . . .	In powder, of each, equal parts.

Mix.

Use.—In diarrhœa occasioned, or accompanied, by a relaxed or irritable condition of the intestines.

Doses.—Horse, 4 to 6 drachms.—Cattle, 4 to 6 drachms.—Sheep, 1 to 1½ drachm.—Pig, 1 to 1½ drachm.—Dog, 10 to 30 grains.

Mode of Application.—In the form of bolus, or mixed with gruel.

PULVIS RHEI COMPOSITUS

COMPOUND POWDER OF RHUBARB

Synonym.—Gregory's Powder, or Gregory's Mixture.

Take of—

Rhubarb Root, in powder	2 ounces.
Ginger, in powder	1 ounce.
Light Magnesia	6 ounces.

Mix thoroughly, and pass the powder through a fine sieve.

Actions and Uses.—Antacid and stomachic in indigestion.

Doses.—Horse, 2 to 3 ounces.—Cattle, 2 to 4 ounces.—Sheep, 1 to 2 drachms.—Pig, 1 to 2 drachms.—Dog, 10 to 30 grains.

Modes of Application.—In the form of bolus, or mixed with gruel.

PULVIS ZINCI CARBONATIS COMPOSITUS

COMPOUND POWDER OF CARBONATE OF ZINC

Take of—

Carbonate of Zinc, in powder . .	4 ounces.
Alum, in powder	1 ounce.

Mix.

Uses.—Excitant and astringent when sprinkled over abrasions, ulcerated heels, open joints, &c.

PYROXYLIN

GUN COTTON

Synonym.—Dinitro-cellulose.

Composition. — $C_6\left[\begin{matrix}H_8\\(NO_2)_2\end{matrix}\right]O_5$, *i. e.* one molecule of cellulose, $C_6H_{10}O_5$, in which two atoms of hydrogen are replaced by two molecules of nitric peroxide, NO_2.

Mode of Preparation.—Take of—

Cotton Wool	1 ounce.
Sulphuric Acid . . .	of each, 5 fluid ounces.
Nitric Acid	

Mix the acids in a porcelain mortar, immerse the cotton in the mixture, and stir it for three minutes with a glass rod until it is thoroughly wetted with the acids. Transfer the cotton to a vessel containing water, stir it well with a glass rod, decant the liquid, pour more water upon the mass, agitate again, and repeat the affusion, agitation, and decantation, until the washings cease to give a precipitate with barium chloride, indicating that the acids have been completely removed. Drain the product on filtering paper, and dry it in a water-bath.

$$\begin{array}{ccccccc} \text{Cellulose.} & & \text{Nitric Acid.} & & \text{Dinitro-cellulose.} & & \text{Water.} \\ C_6H_{10}O_5 & + & 2HNO_3 & = & C_6\left[\begin{matrix}H_8\\(NO_2)_2\end{matrix}\right]O_5 & + & 2H_2O \end{array}$$

Tests.—Readily soluble in a mixture of ether and rectified spirit; should leave no residue when exploded by heat

Preparations.—Collodium; Collodium Flexile.

QUERCUS CORTEX

OAK BARK

The dried bark of the small branches and young stems of *Quercus pedunculata.* Collected in spring from trees growing in Britain.

Natural Order.—*Cupuliferæ.*

Composition.—Its medicinal activity depends upon its containing from fifteen to twenty per cent. of tannic acid with a small quantity of gallic acid.

Characters.—Covered with a greenish shining epidermis; cinnamon-coloured on the surface; fibrous, brittle, and strongly astringent.

Actions and Uses.—*Internally*:—Astringent and tonic. Employed to arrest diarrhœa, dysentery, and similar mucous discharges. *Externally*:—Astringent, styptic, and excitant. Occasionally used for stimulating unhealthy wounds, and arresting gangrene; also in prolapsus recti and prolapsus uteri.

Doses.—Horse, 2 to 6 drachms.—Cattle, 2 to 6 drachms.—Sheep, ½ to 2 drachms.—Pig, ½ to 2 drachms.—Dog, 10 to 30 grains.

Modes of Application.—*Internally:*—The powdered bark made into a bolus, or mixed with gruel, but preferably in the form of Decoctum Quercûs. *Externally:*—The powder, or Decoctum Quercûs.

Preparation.—Decoctum Quercûs.

QUINIÆ SULPHAS

SULPHATE OF QUINIA

Synonyms.—Quinia Sulphate; Sulphate of Quinine; Disulphate of Quinine.

Composition.—$(C_{20}H_{24}N_2O_2)_2H_2SO_4$. 7Aq.

Mode of Preparation.—Take of—

Yellow Cinchona Bark, in coarse powder	1 pound.
Hydrochloric Acid	3 fluid ounces.
Distilled Water	a sufficiency.
Solution of Soda	4 pints.
Diluted Sulphuric Acid . . .	a sufficiency.

Dilute the hydrochloric acid with ten pints of the water. Place the cinchona bark in a porcelain basin, and add to it as much of the diluted hydrochloric acid as will render it thoroughly moist. After maceration, with occasional stirring, for twenty-four hours, place the bark in a displacement apparatus, and percolate with the diluted hydrochloric acid until the solution which drops through is nearly destitute of bitter taste. Into this liquid pour the solution of soda, agitate well, let the precipitate (impure quinia) completely subside, decant the supernatant fluid, collect the precipitate on a filter, and wash it with cold distilled water until the washings cease to have colour. Transfer the precipitate to a porcelain dish containing a pint of distilled water, and, applying to this the heat of a water-bath, gradually add diluted sulphuric acid until very nearly the whole of the precipitate has been dissolved, and a neutral liquid has been obtained.

Filter the solution, while hot through paper, wash the filter with boiling distilled water, concentrate the filtrate till a film forms upon its surface, and set it aside to crystallize.

Dry the crystals (quinia sulphate) on filtering paper without the application of heat.

By digestion with diluted hydrochloric acid the bark is exhausted of quinia, cinchona, and other alkaloids which are precipitated on the addition of soda to the solution. The precipitated alkaloids, on being dissolved in diluted sulphuric acid are converted into sulphates, and their aqueous solution, when evaporated till a film forms upon its surface and allowed to cool, deposits the less soluble quinia sulphate, while the more soluble cinchonia sulphate remains in the mother-liquor.

Characters and Tests.—Filiform, silky snow-white* crystals, of a pure intensely bitter taste, sparingly soluble in water, yet imparting to it a peculiar bluish tint. The solution gives with barium chloride a white precipitate (barium sulphate), insoluble in nitric acid, showing that the salt is a sulphate, and when treated first with solution of chlorine and afterwards with ammonia, it assumes a splendid emerald-green colour, highly characteristic of quinia.

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* Herring's "Hospital Sulphate of Quinine" is less costly than this preparation, owing to its not having been deprived of colour, and may be substituted for it in veterinary medicine.

Should dissolve in pure sulphuric acid with a feeble yellowish tint, and undergo no further change of colour when gently warmed. Ten grains, with ten minims of diluted sulphuric acid and half a fluid ounce of water, form a perfect solution, from which ammonia throws down a white precipitate (quinia). This should redissolve on agitating the whole of it with half a fluid ounce of ether, without leaving any crystalline matter (cinchonia) floating on the lower of the two strata, into which the agitated fluid separates on rest. Twenty-five grains of the salt should lose 3·6 grains of water by drying at 212° F.

Actions and Uses.—Tonic and antiperiodic in intermittent and other fevers; in loss of appetite, and weak digestion depending on debility; in acute rheumatism, chorea in dogs, and constitutional or deep-seated ophthalmia in horses; during convalescence from acute complaints; also during the exhaustion which follows influenza and other diseases.

Doses.—HORSE, 20 to 40 grains.—CATTLE, 20 to 60 grains.—SHEEP, 5 to 10 grains.=PIG, 5 to 10 grains.—DOG, 1 to 5 grains.

Modes of Application.—In the form of bolus, or mixed with gruel.

Incompatibles.—Alkalies and their carbonates; infusion of vegetable astringents precipitate quinia tannate especially in the presence of sulphuric acid.

RESINA

RESIN

Synonym.—Yellow Resin.

The residue obtained by distilling the turpentines from various species of *Pinus*, and withdrawing the heat before the whole of the volatile oil is expelled.

Composition.—A mixture of abietic (sylvic) acid, which is crystallizable, and pinic acid, which is amorphous.

Characters.—Translucent, yellowish, brittle, pulverizable; fracture shining; odour and taste faintly terebinthinate. When heated it easily fuses, and burns with a dense yellow flame and much smoke.—Soluble in rectified spirit, insoluble in water.

Actions and Uses.—*Internally*:—Diuretic. *Externally*:—Mild excitant, astringent, and styptic. Also employed for imparting consistency and adhesiveness to plasters.

Doses.—Horse, 4 to 6 drachms.—Cattle, 4 to 6 drachms.—Sheep, 1 to 2 drachms.—Pig, 1 to 2 drachms.—Dog, 20 to 30 grains.

Modes of Application.—*Internally*:—Resin is principally given to the horse. It is administered in the form of bolus, preferably as Massa Resinæ composita. *Externally*:—The powder sprinkled over wounds. To arrest hæmorrhage after castration a small quantity of the powder is sometimes applied to the ends of the spermatic cord and melted by a hot iron.

Preparations.—Massa Resinæ composita; Emplastrum Picis; Unguentum Resinæ.

RHEI RADIX

RHUBARB ROOT

The dried root, deprived of the bark, from one or more undetermined species of *Rheum*. Grows in China, Chinese

Tartary, and Thibet. Imported from Shanghai and Canton, and brought overland by way of Moscow.

Natural Order.—*Polygonaceæ.*

Composition.—The root contains a number of principles, including chrysophanic acid, erythroretin, phæoretin, and aporetin. At present it is not known whether the physiological effects of rhubarb are due to one particular constituent or to the combined action of several of them.

Characters.—Trapezoidal, roundish, cylindrical or flattish pieces, frequently bored with one hole; yellow externally, internally marbled with fine waving greyish and reddish lines; finely gritty under the teeth; taste bitter, faintly astringent and aromatic; odour peculiar. Should be free from decay and not worm-eaten. Boracic acid does not turn rhubarb brown unless it is adulterated with turmeric.

Actions and Uses.—But little used in veterinary medicine. Chiefly given as a tonic to young animals with weak digestions, and to the dog as a cathartic.

Doses.—*Tonic*:—Horse, 1 to 1½ ounce.—Cattle, 1 to 2 ounces.—Sheep, 2 to 4 drachms.—Pig, 1 to 1½ drachm. —Dog, 10 to 30 grains. *Cathartic*:—Dog, 2 to 3 drachms.

Mode of Application.—The powdered root made into a bolus or mixed with gruel.

Preparation.—Pulvus Rhei compositus.

ROSÆ GALLICÆ PETALA

RED ROSE PETALS

The fresh and dried unexpanded petals of *Rosa gallica*. From plants cultivated in Britain.

Natural Order.—*Rosaceæ.*

Characters.— Colour fine purplish red, retained after drying; taste bitterish, feebly acid, and astringent; odour roseate (owing to presence of volatile oil), developed by drying.

Use.—In preparing Confectio Rosæ Gallicæ.

SABINÆ CACUMINA

SAVIN TOPS

The fresh and dried tops of *Juniperus sabina.* Collected in spring from plants cultivated in Britain.

Natural Order.—*Coniferæ.*

Composition.—Medicinal properties are due to a volatile oil having the formula $C_{10}H_{16}$.

Characters.—Twigs densely covered with minute imbricated appressed leaves in four rows; odour strong, peculiar, and unpleasant; taste acrid, bitter, resinous, and disagreeable.

Actions and Uses.—*Internally:*— In excessive doses, irritant poison; in medicinal doses, anthelmintic, but is very seldom employed for this purpose, on account of its violent and uncertain irritant qualities. *Externally:*— Stimulant to ill-conditioned wounds and indolent sores; also used for maintaining the action of, and keeping up the discharge from, blisters and setons.

Mode of Application.—*Externally:*—Infusum Sabinæ, and, preferably, Unguentum Sabinæ.

Preparations.—Infusum Sabinæ; Unguentum Sabinæ.

SACCHARUM PURIFICATUM

REFINED SUGAR

Pure cane sugar prepared from the juice of the stem of *Saccharum officinarum*, cultivated in the West Indies and other tropical countries.

Natural Order.—*Graminaceæ.*

Composition.—$C_{12}H_{22}O_{11}$.

Characters.—Compact crystalline conical loaves, known in commerce as lump sugar.

Preparations.—Confectio Rosæ Gallicæ; Ferri Carbonas Saccharata.

SANTONINUM

SANTONIN

A crystalline neutral principle obtained from the *Artemisia santonica* or *Semen contra,* which is not a seed, but the unexpanded flower heads of a species of Artemisia imported from Russia. It is the only so-called worm seed which yields santonin in quantity worth extracting.

Natural Order.—*Compositæ.*

Composition.—$C_{15}H_{18}O_3$.

Characters and Tests.—In colourless, flat, rhombic prisms, feebly bitter, sparingly soluble in water. Solubility in rectified spirit 1 in 50. Not dissolved by diluted mineral acids. Entirely destructible by a red heat with free access of air.

Actions and Uses.—*Internally:*—Anthelmintic, useful both for tape- and thread-worms.

Doses.—HORSE, 20—40 grains.—DOG, 5—10 grains.

SAPO DURUS

HARD SOAP

Composition.—Chiefly sodium oleate,* $NaC_{18}H_{33}O_2$, with a large percentage of water.

Mode of Preparation.—Olive oil* is boiled with caustic soda (sodium hydrate); glycerin passes into solution, and sodium oleate (hard soap) floats on the surface of the liquid. After remaining quiescent for a few hours the soap is skimmed off, transferred to "frames," in which it solidifies on cooling, and finally cut by wires into slabs or bars.

$$\underset{\substack{\text{Olive Oil}\\\text{(Triolein).}}}{C_3H_5(C_{18}H_{33}O_2)_3} + \underset{\substack{\text{Sodium}\\\text{Hydrate.}}}{3NaHO} = \underset{\substack{\text{Sodium}\\\text{Oleate.}}}{3NaC_{18}H_{33}O_2} + \underset{\text{Glycerin.}}{H_3C_3H_5O_3}$$

Characters.—Greyish white, dry, horny, and pulverizable when kept in dry warm air; easily moulded when heated. Soluble in rectified spirit, producing a solution which, when evaporated on paper, does not leave an oily stain. Incinerated, it yields an ash which does not deliquesce.

Actions and Uses.—*Internally:*—Cathartic and diuretic, but chiefly employed as an antacid, as an antidote to poisoning by the mineral acids, and in the preparation of clysters. *Externally*:—Stimulant to sprains and contusions; also applied to burns and scalds to diminish the irritation and pain by excluding air. Likewise employed as an excipient in making up boluses, liniments, and ointments.

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* Although the 'British Pharmacopœia' directs hard soap to be made from olive oil, the best "curd soap" of commerce, which is a mixture of sodium stearate, palmitate, and oleate, and which is prepared from various solid and liquid fats, may be substituted for it in practice.

Doses.—HORSE, 1 to 2 ounces.—CATTLE, 1 to 2 ounces.—SHEEP, 2 to 6 drachms.—PIG, 2 to 6 drachms.—DOG, 20 to 60 grains.

Modes of Application.—In the form of bolus, or beaten up with water.

Incompatibles.—Acids, and most metallic salts.

SAPO MOLLIS

SOFT SOAP

Composition.—Principally potassium oleate,* $KC_{18}H_{33}O_2$, with glycerin, free potassium hydrate, and a large percentage of water.

Mode of Preparation.—By boiling together olive oil* and caustic potash (potassium hydrate) until the soap produced assumes the appearance of a transparent jelly, and until a drop of it, when allowed to fall on a glass plate, remains clear, and does not exhibit a fatty border on cooling.

$$\overset{\substack{\text{Olive Oil}\\\text{(Triolein).}}}{C_3H_5(C_{18}H_{33}O_2)_3} + \overset{\substack{\text{Potassium}\\\text{Hydrate.}}}{3KHO} = \overset{\substack{\text{Potassium}\\\text{Oleate.}}}{3KC_{18}H_{33}O_2} + \overset{\text{Glycerin.}}{H_3C_3H_5O_3}$$

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* Olive oil is directed by the 'British Pharmacopœia' to be employed in the preparation of soft soap, but the commercial article, which is the material used by the veterinary surgeon, is made from tallow, also from whale, linseed, and other oils.

Uses.—In the preparation of Linimentum Saponis compositum.

Preparation.—Linimentum Saponis compositum.

SEVUM PRÆPARATUM

PREPARED SUET

The internal fat of the abdomen of the sheep, *Ovis aries*, purified by melting and straining.

Composition.—A mixture of stearin, palmitin, and olein.

Characters.—White, smooth, almost scentless; fusible at 103° F.

Uses.—Sometimes employed as a substitute for, or in conjunction with, lard, in the preparation of ointments.

SINAPIS

MUSTARD

The seeds of *Sinapis nigra* and *Sinapis alba*; also the seeds of both reduced to powder and mixed.

Natural Order.—*Cruciferæ.*

Composition.—The vesicating power of mustard, and the pungent odour emitted by it when moistened, depend upon a volatile oil (allyl sulphocyanide, C_3H_5CNS). It does not exist ready formed in the seed, but is developed by the mutual action of two of its proximate principles, viz. synaptase or myrosin, a kind of ferment, and potassium myronate, in the presence of hot, but not boiling water.*

$$\overset{\text{Potassium Myronate.}}{KC_{10}H_{18}NS_2O_{10}} = \overset{\text{Allyl Sulphocyanide.}}{C_3H_5CNS} + \overset{\text{Glucose.}}{C_6H_{12}O_6} + \overset{\text{Potassium Sulphate.}}{KHSO_4}$$

Actions and Uses.—Vesicant and counter-irritant, in the form of poultice.

Preparations.—Cataplasma Sinapis; Cataplasma Sinapis Ammoniata.

SODA CAUSTICA

CAUSTIC SODA

Synonyms.—Sodium Hydrate; Hydrate of Sodium; Hydrate of Soda.

Composition.—$NaHO$.

Mode of Preparation.—Take of—

Solution of Soda	2 pints.

Boil down the solution of soda rapidly in a silver or clean iron vessel until there remains a fluid of oily consistency, a drop of which, when removed on a warmed glass rod, solidifies on cooling. Pour the fluid on a clean silver or iron plate, or into moulds, and as soon as it has solidified break it in pieces, and preserve it in stoppered green glass bottles.

Characters and Tests.—Hard and greyish white, very alkaline and corrosive. Does not deliquesce on exposure to the atmosphere. It imparts a yellow colour to flame, indicating the presence of sodium, and its solution in water, acidulated by nitric acid, should give only scanty white precipitates with argentum nitrate and barium chloride, showing the presence of traces only of chlorides and sulphates respectively.

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* Boiling water coagulates synaptase, and destroys its power as a ferment.

Actions and Uses.—*Externally:*—As a caustic. It is equal in activity to Potassa Caustica, but preferable to this agent, as it does not deliquesce and spread.

SODÆ ACETAS

ACETATE OF SODA

Synonym.—Sodium Acetate.

Composition.—$NaC_2H_3O_2 \,.\, 3Aq.$

Mode of Preparation.—By dissolving sodium carbonate in acetic acid and evaporating the solution, so that the sodium acetate produced may crystallize out. The crystals are drained, and subsequently dried by exposure to air on a porous brick.

$$\overset{\substack{\text{Sodium}\\ \text{Carbonate.}}}{Na_2CO_3} + \overset{\substack{\text{Acetic}\\ \text{Acid.}}}{2HC_2H_3O_2} = \overset{\substack{\text{Sodium}\\ \text{Acetate.}}}{2NaC_2H_3O_2} + \overset{\substack{\text{Carbonic}\\ \text{Anhydride.}}}{CO_2}$$

$$+ \overset{\text{Water.}}{H_2O}$$

The salt, in assuming the crystalline state, acquires three molecules of water.

Characters and Tests.—Transparent colourless crystals, soluble in water, forming a solution neutral to test-paper. The salt, or its solution in water, warmed with dilute sulphuric acid, emits the odour of vinegar. The aqueous solution, when dilute, is not precipitated by barium chloride or silver nitrate, showing its freedom from sulphates and chlorides.

Use.—In the preparation of acetic acid.

SODÆ BICARBONAS

BICARBONATE OF SODA

Synonym.—Sodium-Hydrogen Carbonate.

Composition.—$NaHCO_3$.

Mode of Preparation.—Carbonic anhydride* is passed into a vessel containing a mixture of two parts of crystallized and three parts of dried sodium carbonate until the gas is no longer absorbed. The damp salt which is formed is shaken occasionally during half an hour with half its weight of cold distilled water, for the purpose of dissolving an unaltered carbonate, and the remaining insoluble bicarbonate is dried by exposure to air on filtering paper placed on porous bricks. The object of using the crystallized carbonate is that it may conveniently furnish the necessary amount of water for the success of the process.

Sodium Carbonate.		Carbonic Anhydride.		Water.		Sodium-hydrogen Carbonate.
Na_2CO_3	$+$	CO_2	$+$	H_2O	$=$	$2NaHCO_3$

Characters and Tests.—In powder, or small opaque irregular scales, white; saline unpleasant taste. Imparts a yellow colour to flame, showing the presence of sodium. Soluble in water 1 part in 10. Dissolves with effervescence in diluted hydrochloric acid, showing that it is a carbonate; and the hydrochloric acid solution gives no precipitate with platinic chloride, indicating that it is neither a potassium nor an ammonium salt. Its aqueous solution acidified with nitric acid should give but faint indications of sulphates and chlorides on the addition of barium chloride and silver nitrate. A solution of the salt in cold water gives a white and not a coloured precipitate with mercuric chloride, unless sodium carbonate be present. Distinguished from sodium carbonate by its aqueous solution not giving a precipitate with magnesium sulphate.

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* For mode of generating this gas, see Potassæ Bicarbonas.

Actions and Uses.—Similar to those of Potassæ Bicarbonas. Less alkaline and milder than Sodæ Carbonas.

Doses.—Horse, 4 to 6 drachms.—Cattle, 4 to 8 drachms.—Sheep, 1 to 2 drachms.—Pig, 1 to 2 drachms. —Dog, 5 to 40 grains.

Modes of Application. } Same as Potassæ Bicarbonas.
Incompatibles.

SODÆ CARBONAS

CARBONATE OF SODA

Synonyms.—Sodium Carbonate; Washing Soda.

Composition.—$Na_2CO_3 . 10Aq$.

Mode of Preparation.—Sodium chloride (common salt) is decomposed by sulphuric acid, whereby sodium sulphate ("salt cake") and hydrochloric acid are produced; the former remains on the hearth, while the latter escapes by the chimney, of the furnace in which the operation is conducted.

Sodium Chloride.		Sulphuric Acid.		Sodium Sulphate.		Hydrochloric Acid.
$2NaCl$	+	H_2SO_4	+	Na_2SO_4	=	$2HCl$

The sodium sulphate is next heated with a mixture of carbon (coal dust) and calcium carbonate (chalk or limestone), when the following changes take place:

$$1.\quad \overset{\substack{\text{Sodium}\\\text{Sulphate.}}}{Na_2SO_4} + \overset{\text{Carbon.}}{2C_2} = \overset{\substack{\text{Sodium}\\\text{Sulphide.}}}{Na_2S} + \overset{\substack{\text{Carbonic}\\\text{Oxide.}}}{4CO}$$

$$2.\quad \overset{\substack{\text{Sodium}\\\text{Sulphide.}}}{Na_2S} + \overset{\substack{\text{Calcium}\\\text{Carbonate.}}}{CaCO_3} = \overset{\substack{\text{Sodium}\\\text{Carbonate.}}}{Na_2CO_3} + \overset{\substack{\text{Calcium}\\\text{Sulphide.}}}{CaS}$$

The resulting mixture of sodium carbonate and calcium sulphide ("black ash" or "ball soda"), when cold, is broken up into little pieces and lixiviated with water; the sodium carbonate passes into solution, and the calcium sulphide is undissolved. By evaporating to dryness the solution thus formed, "soda ash" is procured, and by dissolving "soda ash" in water, filtering, and evaporating the solution, and then allowing it to cool, sodium carbonate is obtained in the crystallized state.

Characters and Tests.—Transparent, colourless, laminar, rhombic crystals, efflorescent; harsh alkaline taste, and strong alkaline reaction. It imparts a yellow colour to flame, showing the presence of sodium, and dissolves with effervescence in diluted hydrochloric acid, indicating that it is a carbonate. Soluble in cold water 1 in 2; insoluble in rectified spirit. The hydrochloric acid solution gives no precipitate with platinic chloride, showing that it is neither a potassium nor an ammonium salt. Its aqueous solution gives a white precipitate (magnesium carbonate) with magnesium sulphate, a reaction by which it is distinguished from Sodæ Bicarbonas. Strongly heated, it undergoes the aqueous fusion, and then dries up, losing water to the extent of sixty-three per cent. of its weight. When its aqueous solution is treated with excess of nitric acid it should yield but slight precipitates with barium chloride and silver nitrate, indicating the almost total absence of sulphates and chlorides.

Actions and Uses.—Very similar to those of Potassæ Bicarbonas, Potassæ Carbonas, and Sodæ Bicarbonas.

Doses.—Half those of Sodæ Bicarbonas.

Modes of Application.
Incompatibles. } Same as Sodæ Bicarbonas.

Preparations.—Liquor Sodæ; Liquor Sodæ Chloratæ; Sodæ Bicarbonas; Sodæ Carbonas exsiccata.

SODÆ CARBONAS EXSICCATA

DRIED CARBONATE OF SODA

Composition.—Na_2CO_3.

Mode of Preparation.—Crystallized sodium carbonate is heated in a porcelain capsule until the liquid which first forms is converted into a dry cake. This cake, when pulverized, is to be preserved in a stoppered bottle.

Actions and Uses.—Similar to those of the potassium and sodium carbonates and bicarbonates.

Doses.—About one fourth of those of Sodæ Bicarbonas.

Modes of Application.
Incompatibles. } Same as Sodæ Bicarbonas.

SODÆ HYPOSULPHIS

HYPOSULPHITE OF SODA

Synonym.—Sodium Hyposulphite; Antichlor.

Composition.—Na_2SO_4 10Aq.

Mode of Preparation.—An aqueous solution of sodium sulphite is boiled with flowers of sulphur and filtered. On evaporating the filtrate the salt crystallizes out.

Assuming the first of the above formulæ to represent the composition of the salt, the following equation explains its formation :

$$\overset{\text{Sodium Sulphite.}}{2Na_2SO_3} + \overset{\text{Sulphur.}}{S_2} = \overset{\text{Sodium Hyposulphite.}}{2Na_2S_2O_3}$$

During crystallization the salt acquires five molecules of water.

Characters and Tests.—Rhombic prisms, soluble in water. Imparts a yellow colour to flame, indicating the presence of sodium. Diluted hydrochloric acid added to its aqueous solution causes effervescence (due to the expulsion of sulphurous anhydride, recognisable by its odour), and the solution is, at the same time, rendered turbid by the precipitation of sulphur. The latter reaction distinguishes this salt from sodium sulphite.

Actions and Uses.
Doses.
Incompatibles.
} Same as Sodæ Sulphis.

SODÆ SULPHAS

SULPHATE OF SODA

Synonyms.—Sodium Sulphate ; Glauber's Salt.

Composition.—$Na_2SO_4$10Aq.

Mode of Preparation.—By neutralizing the residue (sodium-hydrogen sulphate) left in the manufacture of hydrochloric acid with sodium carbonate, and crystallizing the product from solution in water.

$$\overset{\text{Sodium-hydrogen Sulphate.}}{\mathrm{2NaHSO_4}} + \overset{\text{Sodium Carbonate.}}{\mathrm{Na_2CO_3}} = \overset{\text{Sodium Sulphate.}}{\mathrm{2NaSO_4}} + \overset{\text{Carbonic Anhydride.}}{\mathrm{CO_2}} + \overset{\text{Water.}}{\mathrm{H_2O}}$$

Characters and Tests.—Transparent oblique prisms; has a saline and bitter taste; effloresces on exposure to the air; soluble in water, 1 in 3. Heated in a porcelain crucible it loses 55·9 per cent. of water. It imparts a yellow colour to flame, indicating the presence of sodium. With barium chloride its aqueous solution furnishes a white precipitate (barium sulphate) insoluble in nitric acid, showing that the salt is a sulphate. Its aqueous solution mixed with diluted hydrochloric acid gives no precipitate with platinic chloride, proving that it is neither a potassium nor an ammonium salt.

Actions and Uses.—Cathartic, diuretic, and resolvent. Magnesiæ Sulphas being more certain in its action than Sodæ Sulphas the latter is not much employed by the veterinarian, except, occasionally, as a purgative for cattle.

Doses.—Purgative for cattle, from 1 to 1½ pound.

Mode of Application.—Dissolved in water, or mixed with ginger and treacle.

SODÆ SULPHIS

SULPHITE OF SODA

Synonym.—Sodium Sulphite.

Composition.—$Na_2SO_3 \cdot 7Aq$.

Mode of Preparation.—An aqueous solution of sodium carbonate is saturated with sulphurous anhydride; sodium-hydrogen sulphite is formed and remains in solution, while carbonic anhydride escapes in the gaseous state.

$$\begin{array}{ccccccccc} \text{Sodium Carbonate.} & & \text{Sulphurous Anhydride.} & & \text{Water.} & & \text{Sodium-hydrogen Sulphite.} & & \text{Carbonic Anhydride.} \\ Na_2CO_3 & + & 2SO_2 & + & H_2O & = & 2NaHSO_3 & + & CO_2 \end{array}$$

The solution of sodium-hydrogen sulphite is mixed, while warm, with as much sodium carbonate as was used in the first operation; on cooling, sodium sulphite crystallizes out. The crystals, after being drained, are dried on filtering paper.

$$\begin{array}{ccccccccc} \text{Sodium-hydrogen Sulphite.} & & \text{Sodium Carbonate.} & & \text{Sodium Sulphite.} & & \text{Carbonic Anhydride.} & & \text{Water.} \\ 2NaHSO_3 & + & Na_2CO_3 & = & 2Na_2SO_3 & + & CO_2 & + & H_2O \end{array}$$

In the act of crystallizing the salt takes up seven molecules of water.

Characters and Tests.—Sometimes in transparent prismatic crystals, but usually in white opaque masses. Soluble in water. It imparts a yellow colour to flame, showing the presence of sodium. On adding diluted hydrochloric acid to its aqueous solution, sulphurous anhydride (recognisable by its odour) is evolved with effervescence, and the solution remains bright and transparent.

Actions and Uses.— *Internally*:— Antiseptic, disinfectant, and alterative. Given in indigestion, tympanitis, and in so-called blood diseases. *Externally*:—Antiseptic, deodorizer, and disinfectant. Employed in the treatment of ulcerated sore throat, and phagedænic wounds and ulcers.

Doses —HORSE, 1 to 1½ ounce.—CATTLE, 2 to 4 ounces.—SHEEP, 2 to 6 drachms.—PIG, 2 to 6 drachms.—DOG, 20 to 60 grains. Frequently repeated.

Modes of Application.—*Internally*:—Dissolved in water. *Externally*:—Three to four drachms, dissolved in every ounce of water employed.

Incompatibles.—Acids, and most metallic salts.

SODII CHLORIDUM

CHLORIDE OF SODIUM

Synonym.—Sodium Chloride; Common Salt.

Composition.—NaCl.

Mode of Preparation.—Crude "rock salt," or a similar product obtained by evaporating sea-water, or the water of brine-springs, is purified by solution and crystallization.

Characters and Tests.—Small, white, crystalline grains, or transparent cubic crystals, free from moisture; purely saline taste; soluble in water. Its aqueous solution mixed with hydrochloric acid and platinic chloride yields no precipitate, showing that it is neither an ammonium nor a potassium salt. It imparts a yellow colour to flame, indicating that sodium is present; and its aqueous solution gives with silver nitrate a white precipitate (silver chloride) soluble in ammonia, but insoluble in boiling nitric acid, proving the salt to be a chloride.

Actions and Uses.— *Internally*:— In excessive doses, irritant poison; in medicinal doses, cathartic, anthelmintic, emetic, diuretic, tonic, alterative, and resolvent. To cattle and sheep it is given as an anthelmintic; also as a purgative in diarrhœa caused by the presence of an irritant or by over-feeding, in fardel-bound, and in distension of the stomach by food. To sheep it is likewise given as a preventive of rot, for the destruction of intestinal worms, and as a corrective of the bad effects of damp and badly kept fodder. It is employed as an emetic for the dog, and is given to all animals, in frequently repeated doses, as a tonic and stimulant in impaired digestion. Rock salt should always be kept as a provocative of the appetite in the horse's manger, the ox's crib, and the sheep's trough. *Externally*:—As a stimulant in chronic sprains, many affections of the joints, and in some diseases of the feet, particularly amongst cattle and sheep. Common salt is frequently added to laxative enemas.

Doses.—*Anthelmintic and Cathartic*:—CATTLE, 12 to 24 ounces.—SHEEP, 1 to 3 ounces.

Emetic:—DOG, 1 to 2 drachms.

Tonic:—HORSE, 1 to 2 ounces.—CATTLE, 2 to 4 ounces. —SHEEP, 2 to 4 drachms.—PIG, 1 to 3 drachms.—DOG, 10 to 30 grains.

Modes of Application.—*Internally*:—As a cathartic and emetic, dissolved in tepid water. Sometimes half doses of chloride of sodium and sulphate of magnesia are mixed with ginger, pimento, or some other aromatic and treacle; such a mixture will often be voluntarily drunk by cattle and sheep. Croton oil, oil of turpentine, and calomel, may be added to common salt, to increase its cathartic and anthelmintic action; and mustard, sulphate of zinc, sulphate of copper, or tartarated antimony, may be combined with it to ensure its prompt action as an emetic. As a tonic and stomachic, it should be sprinkled over the animal's food, either in the state of powder or in solution. *Externally*:—A lotion consisting of one pound of common salt dissolved in a gallon of cold water. This lotion should be applied during, or immediately after, the solution of the salt.

SPIRITUS ÆTHERIS

SPIRIT OF ETHER

Synonyms.—Spiritus Ætheris Sulphurici.

Take of—

Ether	10 fluid ounces.
Rectified Spirit	1 pint.

Mix.

Test.—Sp. gr. 0·809.

Actions and Uses. — Diffusible stimulant; antispasmodic.

Doses.—HORSE, 3 to 6 fluid ounces.—CATTLE, 5 to 10 fluid ounces.—SHEEP, 1 to 2 fluid ounces.—PIG, 1 to 2 fluid ounces.—DOG, 1 to 5 drachms.

SPIRITUS ÆTHERIS NITROSI

SPIRIT OF NITROUS ETHER

Synonyms.— Spiritus Ætheris Nitrici; Sweet Spirits of Nitre.

Composition.—An alcoholic solution of nitrous ether (ethyl nitrite), $C_2H_5NO_2$.

Mode of Preparation.—Take of—

Nitric Acid	3 fluid ounces.
Sulphuric Acid	2 fluid ounces.
Copper in fine wire (about No. 25)	2 ounces.
Rectified Spirit	a sufficiency.

To one pint of the spirit add gradually the sulphuric acid, and stir them together; then add, in the same way, two and a half fluid ounces of the nitric acid. Put the mixture into a retort or other suitable apparatus, into which the copper has been introduced, and to which a thermometer has been fitted. Attach an efficient condenser, and, applying a gentle heat, let the spirit distil at a temperature commencing at 170° F. and rising to 175°, but not exceeding 180°, until twelve fluid ounces have passed over and been collected in a bottle kept cool, if necessary, with ice-cold water; then withdraw the heat, and, having allowed the contents of the retort to cool, introduce the remaining half ounce of nitric acid, and resume the distillation as before, until the distilled product (spirit of nitrous ether) has been increased to fifteen fluid ounces. Mix this with two pints of the rectified spirit, or as much as will make it correspond to the tests of specific gravity and percentage of ether separated by calcium chloride. Preserve it in well-stoppered bottles.

The following equation explains the principal changes which probably take place in the foregoing process:—

$$\overset{\text{Alcohol.}}{C_2H_5HO} + \overset{\substack{\text{Sulphuric}\\ \text{Acid.}}}{H_2SO_4} + \overset{\substack{\text{Nitric}\\ \text{Acid.}}}{HNO_3} + \overset{\text{Copper.}}{Cu} = \overset{\substack{\text{Ethyl}\\ \text{Nitrite.}}}{C_2H_5NO_2}$$

$$+ \overset{\substack{\text{Cupric}\\ \text{Sulphate.}}}{CuSO_4} + \overset{\text{Water.}}{2H_2O}$$

The ethyl nitrite distils over, accompanied by alcohol and other bodies of minor importance.

Characters and Tests.—Transparent and nearly colourless, but with a very slight tinge of yellow; mobile, inflammable; peculiar penetrating apple-like odour, and sweetish, cooling, sharp taste. Sp. gr. 0·845. It effervesces feebly or not at all when shaken with a little sodium-hydrogen carbonate, indicating the presence of a trace, or the absence of free acid. When agitated with solution of ferrous sulphate and a few drops of sulphuric acid, it becomes deep olive brown or black. Agitated with twice its volume of a saturated solution of calcium chloride (to absorb water and alcohol) in a closed graduated tube, two per cent. of its original volume should separate in the form of ethyl nitrite and rise to the surface of the mixture.

Actions and Uses.—In excessive doses, narcotic and sedative; in medicinal doses, stimulant, antispasmodic, diuretic, and diaphoretic. Given in colic, indigestion, tympanitis, and local congestions; during convalescence from debilitating diseases; also in combination with tincture of opium, for diminishing the pains and spasms which sometimes follow parturition in cows.

Doses.—HORSE, 1 to 2 fluid ounces.—CATTLE, 3 to 4 fluid ounces.—SHEEP, 3 to 6 fluid drachms.—PIG, 3 to 6 fluid drachms.—DOG, ½ to 2 fluid drachms. Frequently repeated.

Mode of Application.—Mixed with sufficient cold water to make a draught.

SPIRITUS AMMONIÆ AROMATICUS*

AROMATIC SPIRIT OF AMMONIA

Take of—

Carbonate of Ammonia . .	8 ounces.
Strong Solution of Ammonia	4 fluid ounces.
Volatile Oil of Nutmeg . .	4 fluid drachms.
Oil of Lemon	6 fluid drachms.

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* This preparation is stronger in spirit, and about one half stronger in ammonia, than the Spiritus Ammoniæ Aromaticus of the 'London Pharmacopœia.'

Rectified Spirit	6 pints.
Water	3 pints.

Mix and distil seven pints.

Tests.—Sp. gr. 0·870.

Actions and Uses.—Diffusible stimulant, antacid, and antispasmodic.

Doses.—Horse, ½ to 1 fluid ounce.—Cattle, ½ to 2 fluid ounces.—Sheep, 2 to 4 fluid drachms.—Pig, 2 to 4 fluid drachms.—Dog, 10 to 20 minims. Mixed with water.

SPIRITUS AMMONIÆ FŒTIDUS

FETID SPIRIT OF AMMONIA

Take of—

Assafœtida	1½ ounce.
Strong Solution of Ammonia	2 fluid ounces.
Rectified Spirit	a sufficiency.

Break the assafœtida into small pieces, and macerate it in a closed vessel, in fifteen fluid ounces of the spirit, for twenty-four hours; then distil off the spirit, mix the product with the solution of ammonia, and add sufficient rectified spirit to make one pint.

Actions and Uses.—Stimulant and antispasmodic.

Doses.—Horse, ½ to 1 fluid ounce.—Cattle, ½ to 2 fluid ounces.—Sheep, 2 to 4 fluid drachms.—Pig, 2 to 4 fluid drachms.—Dog, 10 to 20 minims. Mixed with water.

SPIRITUS CAMPHORÆ

SPIRIT OF CAMPHOR

Synonym.—Tinctura Camphoræ.

Take of—

Camphor	1 ounce.
Rectified Spirit	4 fluid ounces.

Dissolve.

Actions and Uses.—*Externally*:—Stimulant, anodyne, and discutient.

SPIRITUS CHLOROFORMI

SPIRIT OF CHLOROFORM

Synonym.—Chloric Ether.

Take of—

Chloroform	1 fluid ounce.
Rectified Spirit	19 fluid ounces.

Dissolve.

Test.—Sp. gr. 0·871.

Actions and Uses. — Stimulant, antispasmodic, and anodyne.

Doses.—Horse, 2 to 4 fluid ounces.—Cattle, 2 to 4 fluid ounces.—Sheep, ½ to 1 fluid ounce.—Pig, ½ to 1 fluid ounce.—Dog, 1 to 3 fluid drachms. Mixed with water.

SPIRITUS HYDRARGYRI PERCHLORIDI COMPOSITUS

COMPOUND SPIRIT OF PERCHLORIDE OF MERCURY

Synonym.—Liquor Hydrargyri Bichloridi.

Take of—

Perchloride of Mercury, in powder	1 ounce.
Hydrochloric Acid . . .	1 fluid ounce.
Rectified Spirit	7 fluid ounces.

Add the acid to the spirit, and dissolve the perchloride of mercury in the mixture.

Uses.—*Externally:*—Occasionally to farcy ulcers, and for arresting synovial discharges.

SPIRITUS METHYLATUS

METHYLATED SPIRIT

Composition.—A mixture consisting of ninety per cent. of spirit of wine and ten per cent. of methylic alcohol, CH_3HO.

Uses.—As a substitute for the more expensive spirit of wine in the preparation of tinctures, &c., for *external use only*. The law forbids methylated spirit, or any preparation containing it, to be used internally.

SPIRITUS RECTIFICATUS

RECTIFIED SPIRIT

Synonym.—Spirit of Wine.

Composition.—Alcohol (absolute alcohol, C_2H_5HO), with sixteen per cent. of water.

Mode of Preparation.—Saccharine fluids are permitted to ferment, whereby the sugar which they contain is transformed into alcohol and carbonic anhydride. The former is separated from the impurities with which it is mixed by distillation, and the latter escapes into the air in the state of gas.

$$\begin{array}{cccccc} \text{Grape Sugar (Glucose).} & & \text{Alcohol.} & & \text{Carbonic Anhydride.} \\ C_6H_{12}O_6 & = & C_2H_5HO & + & 2CO_2 \end{array}$$

Characters and Tests.—Colourless, transparent, very mobile and inflammable; peculiar pleasant odour, and a strong spirituous burning taste. Burns with a blue flame, without smoke. Sp. gr. 0·358. Should have a purely alcoholic odour and taste, and should remain clear when diluted with distilled water, indicating its freedom from fusel oil (amylic alcohol, $C_5H_{12}O$).

Actions and Uses.—*Internally:*—Stimulant, diuretic, and diaphoretic. Alcohol, in the form of ale, brandy, whiskey, or gin, for the larger animals, and in the form of wine for the smaller ones, is employed as a stimulant in colic and tympanitis; in the latter stages of influenza, bronchitis, and other inflammatory diseases; also in, and during convalescence from, debilitating complaints. *Externally:*—Rectified spirit is added to cooling lotions to increase their refrigerating power. Rectified spirit is likewise employed in the preparation of medicinal spirits, tinctures, and extracts.

Doses.*—HORSE, 1 to 3 ounces.—CATTLE, 3 to 6 ounces. —SHEEP, ½ to 1½ ounce.—PIG, ¼ to 1¼ ounce.—DOG, 1 to 3 drachms. Repeated every two hours.

Table showing the average amounts by measure of absolute alcohol (C_2H_6O) *contained in* 100 *volumes of the following alcoholic beverages:*—

Name of Beverage.	Absolute Alcohol in 100 volumes.
Small Beer and Table Ale	1 to 2
Porter	About 5
Ale (various kinds)	5 to 9
Sherry	15 to 17
Port	17 to 18
Brandy (common)	36
Gin	45
Brandy (Cognac)	46
Rum	48
Whiskey	50

SPIRITUS TENUIOR

PROOF SPIRIT

Composition.—One hundred parts, at 60° F., consists of forty-nine parts by weight of absolute alcohol, and fifty-one parts by weight of water.

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* The doses here enumerated refer to rectified spirit; the determination of those of the ordinary alcoholic beverages must be left to the judgment of the prescriber.

Take of—

Rectified Spirit	5 pints.
Distilled Water	3 pints.

Mix.

Test.—Sp gr. 0·92.

Use.—In the preparation of tinctures.

STRYCHNIA

STRYCHNIA

Composition.—$C_{21}H_{22}NO_2$.

Mode of Preparation.—Take of—

Nux Vomica	1 pound.
Acetate of Lead	180 grains.
Solution of Ammonia . .	a sufficiency.
Rectified Spirit	a sufficiency.
Distilled Water	a sufficiency.

Soften the nux vomica by subjecting it for two hours to steam in any convenient vessel; chop or slice it; dry it in a water-bath or hot-air chamber, and immediately grind it in a coffee mill. Digest the powder at a gentle heat for twelve hours with two pints of the spirit and one of the water, to dissolve out the igasurates of strychnia and brucia; strain through linen, express strongly and repeat the process twice. Distil off the spirit from the mixed fluid, evaporate the watery residue to about sixteen ounçes, and filter when cold. Add now the acetate of lead, previously dissolved in distilled water, so long as it occasions any precipitate (lead igasurate); filter; wash the precipitate with ten ounces of cold water, add the washings to the filtrate (containing the acetates of strychnia and brucia); evaporate the clear fluid to eight ounces, and when it has cooled add the ammonia in slight excess, stirring thoroughly. Let the mixture stand, at the ordinary temperature, for twelve hours; collect the precipitate (impure strychnia) on a filter, wash it once with a few ounces of cold distilled water, dry it in a water-bath or hot-air chamber, and boil it with successive portions of rectified spirit till the fluid scarcely tastes bitter. Distil off most of the spirit, evaporate the residue to the bulk of about half an ounce, and set it aside to cool. Cautiously pour off the yellowish mother-liquor (which contains the brucia of the seeds) from the white crust of strychnia which adheres to the vessel. Throw the crust on a paper filter, wash it with a mixture of two parts of rectified spirit and one of water till the washing cease to become red on the addition of nitric acid, showing that the brucia has been removed from the strychnia; finally, dissolve it (the strychnia) by boiling it with an ounce of rectified spirit, and set it aside to crystallise. More crystals of strychnia may be obtained by evaporating the mother-liquor.

Characters and Tests.—Right square octohedrons or prisms, colourless and inodorous; sparingly soluble in water, but communicating to it an intensely bitter taste; soluble in boiling rectified spirit, chloroform, and in commercial ether, but not in absolute alcohol or ether. Pure sulphuric acid forms with it a colourless solution, which on the addition of solid potassium bichromate acquires a purple hue, changes to yellowish-red, and ultimately leaves a green residue. Should not be coloured by nitric acid; if it turns yellow, it shows that brucia is present. Should leave no ash when burned with free excess of air.

Actions and Uses.—In excessive doses, highly poisonous; in medicinal doses, stimulant and tonic in paralysis, and in chorea in the dog.

Doses.—Horse, 1 to 3 grains.—Cattle, 1 to 3 grains.—Sheep, $\frac{1}{3}$ to 1 grain.—Dog, $\frac{1}{30}$th to $\frac{1}{10}$th grain. Once or twice a day.

Modes of Application.—In the form of bolus, pill, or dissolved in water acidulated with acetic or sulphuric acid.

Antidotes.—Same as to Nux Vomica.

Preparation.—Liquor Strychniæ.

SUCCUS RHAMNI

BUCKTHORN JUICE

Synonym.—Rhamni Succus.

The recently expressed juice of the ripe berry of the common buckthorn, *Rhamnus catharticus*, belonging to the natural order *Rhamnaceæ*.

Preparation.—Syrupus Rhamni.

SULPHUR SUBLIMATUM

SUBLIMED SULPHUR

Synonym.—Flowers of Sulphur.

Composition.—An elementary body, having the symbol S.

Mode of Preparation.—Crude sulphur, imported from Sicily, Naples, the Roman States, and other volcanic districts, is placed in a retort connected with a brick chamber. On the application of heat to the retort the sulphur sublimes into the chamber, to the walls of which it attaches itself, while the earthy impurities remain behind. When a sufficient quantity of the sulphur has collected on the walls of the condensing chamber it is scraped off for use.

Characters and Tests.—A slightly gritty crystalline powder, of a fine greenish-yellow colour, tasteless and odourless, unless heated; burns in open vessels with a blue flame and the evolution of sulphurous anhydride, recognisable by its odour. Entirely volatilised by heat. Insoluble in water, alcohol, and ether, but soluble in carbon disulphide and turpentine. Should not redden moistened litmus paper. Solution of ammonia agitated with it and filtered, does not leave any residue on evaporation, showing that it is free from arsenicum trisulphide.

Actions and Uses.—*Internally* :—In excessive doses, irritant poison; in medicinal doses, laxative, and as an alterative in rheumatism, skin diseases, and many other affections. *Externally* :—In scabies and other skin diseases.

Doses.—*Laxative* :—HORSE 3 to 4 ounces.—CATTLE, 5 to 6 ounces.—SHEEP, 2 ounces.—PIG, 1½ to 2 ounces.—DOG, 2 to 8 drachms.

Alterative :—HORSE, ¾ to 1½ ounce.—CATTLE, 1 to 2 ounces.—SHEEP, 6 drachms.—PIG, 4 to 6 drachms.—DOG, ½ to 2 drachms.

Modes of Application.—*Internally* :—In the form of bolus or pill, mixed with gruel, or dissolved in oil. *Externally* :—Unguentum Sulphuris.

Preparations.—Unguentum Sulphuris. Unguentum Sulphuris compositum.

SULPHURIS IODIDUM

IODIDE OF SULPHUR

Composition.—Not well established.

Mode of Preparation.—Take of—

Iodine	4 ounces.
Sublimed Sulphur	1 ounce.

Rub them together in a Wedgwood mortar until they are thoroughly mixed. Put the mixture into a flask, close the orifice loosely, and apply a gentle heat, so that the colour of the mass shall become gradually darkened. When the colour has become uniformly dark throughout, increase the heat so as to produce liquefaction. Then incline the flask in different directions, in order to return into the liquid any portion of the iodine which may have condensed on the inner surface of the vessel. Lastly, withdraw the heat, and when the liquid has congealed remove the mass by breaking the flask, reduce it to pieces, and keep them in a well-stoppered bottle.

Characters and Tests.—A greyish-black solid, with a radiated crystalline appearance. Resembles iodine in odour and in the property of staining the skin. Soluble in about sixty parts of glycerin; insoluble in water, but decomposed when boiled with it.

Actions and Uses.—*Externally*:—In scabies, urticaria, and other skin affections; also applied to farcy ulcers and indolent sores.

Mode of Application—Unguentum Sulphuris Iodidi.

Preparation.—Unguentum Sulphuris Iodidi.

SYRUPUS PAPAVERIS

SYRUP OF POPPIES

Take of—

Poppy Capsules, dried, freed from seeds, and coarsely powdered	36 ounces.
Rectified Spirit	16 fluid ounces.
Refined Sugar	4 pounds.
Boiling Distilled Water . . .	a sufficiency.

Mix the poppy capsules with four pints of the water, and infuse for twenty-four hours, stirring them frequently; then pack them in a percolator, and, adding more of the water, allow the liquor to pass slowly until about two gallons have been collected, or the poppies are exhausted. Evaporate the liquor by a water-bath until it is reduced to three pints. When quite cold, add the spirit, let the mixture stand for twelve hours, and filter. Distil off the spirit, evaporate the remaining liquor to two pints, and then add the sugar. The product should weigh six and a half pounds, and should have the sp. gr. 1·32.

Actions and Uses.—Sedative, anodyne, and hypnotic for the dog.

Doses.—2 to 5 fluid drachms.

Preparation.—Mistura Ricini.

SYRUPUS RHAMNI

SYRUP OF BUCKTHORN

Take of—

Buckthorn Juice . .	4	pints.
Ginger, sliced .	¾	ounce.
Pimento, bruised		
Refined Sugar . . .	5	pounds, or a sufficiency.
Rectified Spirit . . .	6	fluid ounces.

Evaporate the juice to two and a half pints, add the ginger and pimento, digest at a gentle heat for four hours, and strain. When cold, add the spirit, let the mixture stand for two days, then decant off the clear liquor, and in this dissolve the sugar with a gentle heat, so as to make the sp. gr. 1·32

Use.—In preparing Mistura Ricini.

TABACI FOLIA*

LEAF TOBACCO

The dried leaves of Virginian Tobacco, *Nicotiana tabacum.* Cultivated in America.

Natural Order.—*Solanaceæ.*

Characters.—Large mottled-brown, ovate or lanceolate acuminate leaves, bearing numerous short glandular hairs; having a peculiar heavy odour and nauseous, bitter, acrid taste; yielding, when distilled with potassium hydrate, an alkaline fluid, which has the peculiar odour of nicotia (the active principle of tobacco), and precipitates with platinic chloride and tincture of galls.

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* In practice the ordinary "shag" tobacco is usually employed.

Preparations.—Decoctum Tabaci; Enema Tabaci; Infusum Tabaci.

TEREBINTHINA CANADENSIS

CANADA BALSAM

The turpentine obtained by incision from the stem of *Abies balsamea*, Balm of Gilead fir. Cultivated in Canada.

Natural Order.—*Coniferæ.*

Characters.—Pale yellow ductile oleo-resin, of the consistence of thin honey; peculiar agreeable odour, slightly bitter, feebly acrid taste; by exposure to air it dries very slowly into a transparent adhesive varnish; solidifies when mixed with a sixth of its weight of magnesia.

Use.—In preparing Collodium Flexile.

THERIACA

TREACLE

Synonyms.—Sacchari Fæx; Molasses.

Composition.—A mixture chiefly consisting of uncrystallizable sugar, produced by the action of too high a temperature on cane sugar, unaltered cane sugar, and colouring matter.

Characters.—Thick brown fermentable syrup, very sweet, not crystallizing by rest or evaporation. Sp. gr. about 1·4. Nearly free from empyreumatic odour and flavour.

Actions and Uses.—Laxative. Employed for hastening the activity of cathartics, and as a vehicle for medicines having a disagreeable flavour, or which occasion nausea. Also used in the preparation of masses.

Doses.—HORSE, 1 to 1½ pound.—CATTLE, 1 to 1½ pound. —SHEEP, 3 to 4 ounces.—PIG, 3 to 4 ounces.—DOG, 1 to 2 ounces. Frequently repeated until a laxative effect is produced.

TINCTURA ACONITI*

TINCTURE OF ACONITE

Take of—

Aconite Root, in coarse powder .	2½ ounces.
Rectified Spirit	1 pint.

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* This is the tincture of the 'British Pharmacopœia,' 1867; it has one fourth of the strength of Tinctura Aconiti, Dublin, and one third of the strength of Tinctura Aconiti, London. Fleming's Tincture of Aconite is nearly four times as strong as that of the 'British Pharmacopœia.'

Squire, in his admirable 'Companion to the British Pharmacopœia,' gives the following directions for percolating tinctures:—"After the materials have been macerated for forty-eight hours in three fourths of the menstruum ordered, percolation will be most efficiently performed by decanting the liquid, pressing the ingredients in the hand, and carefully packing them, in small portions at a time, in a conical percolator, so that the mass shall be uniformly tight throughout. The decanted liquid may then be poured upon the ingredients and suffered to percolate; the remainder of the menstruum

Macerate the aconite root for forty-eight hours in fifteen fluid ounces of the spirit in a closed vessel, and agitate occasionally; transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with the remaining five ounces of spirit; then subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient rectified spirit to make one pint.

Uses.—*Internally*:—As a sedative. *Externally*:—As an anodyne.

Doses.—Horse, 30 to 50 minims.—Cattle, 40 to 80 minims.—Sheep, 8 to 12 minims.—Pig, 8 to 12 minims.—Dog, 3 to 10 minims. Given in water, and repeated every two hours.

TINCTURA ALOES COMPOSITA

COMPOUND TINCTURE OF ALOES

Take of—

Barbadoes Aloes, in coarse powder	10 drachms.
Myrrh	5 drachms.
Methylated or Rectified Spirit .	14 fluid ounces.
Water	6 fluid ounces.

Macerate the aloes and the myrrh in the spirit and the water, previously mixed, for fourteen days in a closed vessel, and shake frequently. Filter and add sufficient proof spirit to make one pint.

being afterwards poured upon them in order to chase the strong tincture out. As soon as the liquid ceases to drop, the ingredients are to be removed and pressed. Any deficiency in the product may be made up by adding more of the menstruum and repeating the pressure."

Uses.—*Externally:*—Excitant to wounds, obstinate ulcers, and excoriations.

TINCTURA ARNICÆ

TINCTURE OF ARNICA

Take of—

Arnica Root, bruised	1 ounce.
Proof Spirit	1 pint.

Macerate the arnica for forty-eight hours in fifteen fluid ounces of the spirit, in a closed vessel, agitating occasionally; transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with the remaining five ounces of spirit. Then subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient rectified spirit to make one pint.

Uses.—*Externally:*—Stimulant to sprains and bruises, and in chronic rheumatism.

TINCTURA CAMPHORÆ

See Spiritus Camphoræ

TINCTURA CANTHARIDIS

TINCTURE OF CANTHARIDES

Take of—

Cantharides, in coarse powder . .	¼ ounce.
Proof Spirit	1 pint.

Macerate for seven days in a closed vessel, with occasional agitation; strain, press, and add sufficient proof spirit to make one pint.

Uses.—*Internally:*—Stimulant and tonic. *Externally:*—Tinctura Cantharidis Fortior is used instead.

Doses.—HORSE, 1 to 4 fluid ounces.—CATTLE, 3 to 6 fluid ounces.—SHEEP, ½ to 1½ fluid ounce.—PIG, ½ to 1½ fluid ounce.—DOG, 1 to 3 fluid drachms.

TINCTURA CANTHARIDIS FORTIOR

STRONG TINCTURE OF CANTHARIDES

Take of—

Cantharides, in coarse powder . .	1 ounce.
Proof Spirit	1 pint.

Macerate for seven days in a closed vessel, with occasional agitation; strain, press, filter, and add sufficient proof spirit to make one pint.

Use.—*Externally:*—Stimulant and rubefacient.

TINCTURA CARDAMOMI COMPOSITA

COMPOUND TINCTURE OF CARDAMOMS

Take of—

Cardamom Seeds, freed from their pericarps and bruised	1 ounce.
Cinnamon, bruised	2 ounces.
Proof Spirit	80 fluid ounces.

Macerate, with occasional agitation, for forty-eight hours with sixty fluid ounces of the spirit, pack in a percolator, and let it drain; pour on the remaining spirit, and, when it ceases to drop, press, and wash the mass with sufficient spirit to make the resulting tincture measure eighty fluid ounces.

Uses.—Carminative and antispasmodic.

Doses.—HORSE, 4 to 8 fluid ounces.—CATTLE, 4 to 8 fluid ounces.—SHEEP, 1 to 2 fluid ounces.—PIG, 1 to 2 fluid ounces.—DOG, 2 to 6 fluid drachms.

Preparation.—Tinctura Chloroformi composita.

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TINCTURA CHLOROFORMI COMPOSITA

COMPOUND TINCTURE OF CHLOROFORM

Take of—

Chloroform	1 fluid ounce.
Rectified Spirit	4 fluid ounces.
Compound Tincture of Cardamoms	10 fluid ounces.

Mix.

Uses.—Similar to Spiritus Chloroformi.

Doses.—Same as Spiritus Chloroformi.

TINCTURA CINCHONÆ FLAVÆ

TINCTURE OF YELLOW CINCHONA

Take of—

Yellow Cinchona Bark, in moderately fine powder	4 ounces.
Proof Spirit	1 pint.

Macerate the cinchona bark for forty-eight hours in fifteen fluid ounces of the spirit, in a closed vessel, agitating occasionally; then transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with the remaining five ounces of spirit. Afterwards subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient proof spirit to make one pint.

Uses.—*Internally* :—Stimulant, stomachic, and tonic.

Doses.—Horse, 1 to 3 fluid ounces.—Cattle, 3 to 6 fluid ounces.—Sheep, ½ to 1 fluid ounce.—Pig, ½ to 1 fluid ounce.—Dog, 2 to 5 fluid drachms.

TINCTURA COLCHICI SEMINIS

TINCTURE OF COLCHICUM SEEDS

Take of—

Colchicum Seeds, bruised . . .	2½ ounces.
Proof Spirit	1 pint.

Macerate the colchicum for forty-eight hours in fifteen fluid ounces of the spirit, in a closed vessel, agitating occasionally; then transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with the remaining five ounces of spirit. Afterwards subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient proof spirit to make one pint.

Uses.—*Internally*:—Sedative. *Externally*:—Anodyne.

Doses.—Horse, ½ to 2 fluid ounces.—Cattle, ½ to 2 fluid ounces.—Sheep, 1 to 4 fluid drachms.—Pig, 1 to 4 fluid drachms.—Dog, 20 to 80 minims.

TINCTURA CONII

TINCTURE OF HEMLOCK

Synonym.—Tinctura Conii Fructus.

Take of—

Hemlock Fruit, bruised . . .	2½ ounces.
Proof Spirit	1 pint.

Macerate the hemlock fruit for forty-eight hours in fifteen ounces of the spirit, in a closed vessel, agitating occasionally; transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with the remaining five ounces of spirit. Then subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient proof spirit to make one pint.

Uses.—*Internally*:—Alterative and sedative.

Doses.—Horse, 1 to 2 fluid ounces.—Cattle, 1 to 2 fluid ounces.— Sheep, 3 to 6 fluid drachms.—Pig, 3 to 6 fluid drachms.—Dog, 10 to 40 minims.

TINCTURA CROTONIS

TINCTURE OF CROTON

Take of—

Croton Seeds, bruised	1½ ounce.
Rectified Spirit	1 pint.

Macerate for seven days in a closed vessel, with occasional agitation; strain, dress, filter, and add sufficient rectified spirit to make one pint.

Uses.—*Internally:*—Cathartic. *Externally:*—Rubefacient and counter-irritant.

Doses.—HORSE, ½ to 1 fluid ounce.—CATTLE, ½ to 1½ fluid ounce.—SHEEP, 1 to 3 fluid drachms.—PIG, 1 to 3 fluid drachms.—DOG, 20 to 50 minims.

TINCTURA ERGOTÆ

TINCTURE OF ERGOT

Take of—

Ergot, in coarse powder	5 ounces.
Proof Spirit	1 pint.

Macerate the ergot for forty-eight hours in fifteen fluid ounces of the spirit, in a closed vessel, agitating occasionally; then transfer to a percolator, and, when the fluid ceases to pass, continue the percolation, with the remaining five ounces of spirit. Afterwards subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient proof spirit to make one pint.

Use.—*Externally:*—Parturient.

Doses.—Mare, 1 to 2 fluid ounces.—Cow, 1 to 3 fluid ounces.—Ewe, 1½ to 3 fluid drachms.—Sow, 1½ to 3 fluid drachms.—Bitch, 20 to 60 minims.

TINCTURA FERRI PERCHLORIDI

TINCTURE OF PERCHLORIDE OF IRON

Synonym.—Tinctura Ferri Sesquichloridi.

Take of—

Strong Solution of Perchloride of Iron	5 fluid ounces.
Rectified Spirit	15 fluid ounces.

Mix, and preserve in a stoppered bottle.

Uses.—*Internally:*—Astringent and tonic in hæmaturia, farcy, many typhoid affections, and indigestion; also in distemper in dogs. *Externally:*—Astringent, styptic, and caustic.

Doses.—Horse, 1 to 2 fluid ounces.—Cattle, 1 to 2 fluid ounces.—Sheep, 3 to 6 fluid drachms.—Pig, 3 to 6 fluid drachms.—Dog, 5 to 20 minims. Diluted with water.

TINCTURA IODI*

TINCTURA OF IODINE

Take of—

Iodine	2½ ounces.
Iodide of Potassium	1¼ ounce.
Rectified Spirit	1 pint.

Dissolve the iodine and iodide of potassium in the spirit.

Uses.—*Internally*:—Alterative. *Externally*:—Caustic, stimulant, and deobstruent.

Doses.—Horse, 2 to 6 fluid drachms.—Cattle, 3 to 8 fluid drachms.—Sheep, 1 to 2 fluid drachms.—Pig, 20 to 60 minims.—Dog, 10 to 30 minims.

TINCTURA MYRRHÆ

TINCTURE OF MYRRH

Take of—

Myrrh, in coarse powder . . .	2½ ounces.
Rectified Spirit	1 pint.

Macerate the myrrh for forty-eight hours in fifteen fluid ounces of the spirit, in a closed vessel, agitating occasionally; then transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with the remaining five ounces of spirit. Afterwards subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient rectified spirit to make one pint.

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* This preparation is five times as strong as the Tinctura Iodi of the 'British Pharmacopœia.'

Uses.—*Externally*:—Mild astringent and excitant to foul and indolent ulcers, and to canker in the mouth.

TINCTURA NUCIS VOMICÆ*

TINCTURE OF NUX VOMICA

Take of—

Nux Vomica	2 ounces.
Rectified Spirit	1 pint.

Apply steam to the nux vomica until it is thoroughly softened, then dry rapidly, and reduce it to fine powder. Macerate the powder for forty-eight hours in fifteen fluid ounces of the spirit, in a closed vessel, agitating occasionally; then transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with the remaining five ounces of spirit. Afterwards subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient rectified spirit to make one pint.

Uses.—Stimulant and tonic in paralysis, chorea, and dyspepsia.

Doses.—Horse, 4 to 8 fluid drachms.—Cattle, 4 to 8 fluid drachms.—Sheep, 1 to 2 fluid drachms.—Pig, 1 to 2 fluid drachms.—Dog, 10 to 40 minims.

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* Morton's Tinctura Nucis Vomicæ is two and a half times stronger than this preparation.

TINCTURA OPII

TINCTURE OF OPIUM

Synonym.—Laudanum.

Take of—

Opium, in coarse powder . . .	1½ ounce.
Proof Spirit	1 pint.

Macerate for seven days in a closed vessel, with occasional agitation; then strain, press, filter, and add sufficient proof spirit to make one pint.

Uses.—Anodyne, hypnotic, sedative, and antispasmodic.

Doses.—Horse, 1 to 3 fluid ounces.—Cattle, 1 to 3 fluid ounces.—Sheep, 2 to 8 fluid drachms.—Pig, 2 to 8 fluid drachms.—Dog, 10 to 30 minims.

Preparations.—Enema Opii; Linimentum Opii.

TINCTURA PIMENTÆ

TINCTURE OF PIMENTO

Take of—

Pimento Berries, bruised . . .	2½ ounces.
Proof Spirit	1 pint.

Macerate for seven days in a closed vessel, with occasional agitation; then strain, press, filter, and add sufficient proof spirit to make one pint.

Uses.—Antispasmodic and carminative.

Doses.—HORSE, 3 to 6 fluid ounces.—CATTLE, 3 to 6 fluid ounces.—SHEEP, 1 to 3 fluid ounces.—PIG, 1 to 3 fluid ounces.—DOG, 1 to 3 fluid drachms.

TINCTURA SANTALIS RUBRA

TINCTURE OF RED SANDERS WOOD

Take of—

Sander's Wood, rasped to powder .	½ ounce.
Proof Spirit	1 pint.

Macerate for seven days in a closed vessel, with occasional agitation; then strain, press, filter, and add sufficient proof spirit to make one pint.

Use.—To impart colour to draughts.

TINCTURA ZINGIBERIS

TINCTURE OF GINGER

Take of—

Ginger, in coarse powder . . .	2½ ounces.
Rectified Spirit	1 pint.

Macerate the ginger for forty-eight hours in fifteen fluid ounces of the spirit, in a closed vessel, agitating occasionally; then transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with the remaining five ounces of spirit. Afterwards subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient rectified spirit to make one pint.

Uses.—Carminative, and as an adjunct to tonic, stimulant, and purgative medicines.

Doses.—Horse, 1 to 2 fluid ounces.—Cattle, 1 to 3 fluid ounces.—Sheep, 2 to 6 fluid drachms.—Pig, 2 to 6 fluid drachms.—Dog, ½ to 2 fluid drachms.

UNGUENTUM ACIDI CARBOLICI

OINTMENT OF CARBOLIC ACID

Take of—

Carbolic Acid	1 ounce.
Prepared Lard	6 ounces.

Mix thoroughly.

Uses.—Applied to sloughing and unhealthy wounds.

UNGUENTUM ACIDI CARBOLICI COMPOSITUM

COMPOUND OINTMENT OF CARBOLIC ACID

Take of—

Ointment of Carbolic Acid . .	7 ounces.
Sublimed Sulphur	2 ounces.

Mix thoroughly.

Uses.—In the treatment of scab and mange.

UNGUENTUM ACIDI TANNICI

OINTMENT OF TANNIC ACID

Take of—

Tannic Acid	1 part.
Prepared Lard	6 parts.

Mix thoroughly.

Uses.—Astringent. Sometimes from ½ to 1 part of opium is added to this ointment.

UNGUENTUM ACONITI[*]

COMPOUND OF ACONITE

Take of—

Extract of Aconite	2 ounces.
Prepared Lard	4 ounces.

Mix thoroughly.

Use.—Anodyne.

UNGUENTUM ALUMINIS COMPOSITUM

COMPOUND OINTMENT OF ALUM

Take of—

Alum, in fine powder	1 ounce.
Common Turpentine	1 ounce.
Prepared Lard	3 ounces.

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[*] Unguentum Aconitiæ of the 'British Pharmacopœia' consists of 8 grains of Aconitia, ½ a fluid drachm of Rectified Spirit, and 1 ounce of Prepared Lard

Melt the turpentine and the lard together on a water-bath, add the alum, and stir the mixture while it cools.

Uses.—Astringent and digestive in "grease."

UNGUENTUM ANTIMONII TARTARATI

OINTMENT OF TARTARATED ANTIMONY

Take of—

Tartarated Antimony, in fine powder .	1 ounce.
Prepared Lard	4 ounces.

Mix thoroughly.

Uses.—Counter-irritant to the chest in pulmonary complaints, and to joints in chronic articular affections.

UNGUENTUM ARGENTI NITRATIS

OINTMENT OF NITRATE OF SILVER

Take of—

Nitrate of Silver, in fine powder .	5 to 10 grains.
Prepared Lard	1 ounce.

Mix thoroughly.

Use.—A piece, the size of a pea, is placed between the eyelids every third day in chronic ophthalmia.

UNGUENTUM ARSENICI

OINTMENT OF ARSENIC

Take of—

Arsenious Acid in fine powder . .	6 grains.
Prepared Lard	1 ounce.

Mix thoroughly.

Uses.—Caustic to warts and cancerous growths.

UNGUENTUM CALCIS CHLORATÆ

OINTMENT OF CHLORINATED LIME

Take of—

Chlorinated Lime	1 ounce.
Prepared Lard	4 to 8 ounces.

Mix thoroughly.

Uses.—In grease, especially when accompanied by considerable fœtor.

UNGUENTUM CANTHARIDIS

OINTMENT OF CANTHARIDES

Synonym.—Blistering Ointment.

Take of—

Cantharides, in powder	1 ounce.
Prepared Lard	6 ounces.

Digest the cantharides and lard together over a water-bath for three hours, with occasional stirring; while hot filter through paper, and allow the clear liquid to cool.

Uses.—Irritant to keep open blisters, and to promote the discharge from setons and ulcers.

UNGUENTUM CREASOTI

OINTMENT OF CREASOTE

Take of—

Creasote	1 fluid ounce.
Prepared Lard	8 ounces.

Mix thoroughly.

Uses.—Same as Unguentum Acidi Carbolici.

UNGUENTUM CUPRI SUBACETATIS

OINTMENT OF SUBACETATE OF COPPER

Synonym.—Unguentum Æruginis; Ointment of Verdigris.

Take of—

Subacetate of Copper, in fine powder	1 ounce.
Common Turpentine	1 ounce.
Prepared Lard	12 ounces.

Melt the turpentine and lard together over a water-bath then withdraw the heat, add the subacetate of copper, and thoroughly mix by stirring the whole until cold.

Uses.—Detergent to foul ulcers.

UNGUENTUM GALLÆ

OINTMENT OF GALLS

Take of—

Galls, in fine powder	1 ounce.
Prepared Lard	4 ounces.

Mix thoroughly.

Uses.—Astringent to ulcers with profuse discharge.

UNGUENTUM GALLÆ ET OPII

OINTMENT OF GALLS AND OPIUM

Take of—

Ointment of Galls	5 ounces.
Opium in fine powder	½ ounce.

Mix thoroughly.

Uses.—Astringent and anodyne.

UNGUENTUM HELLEBORI NIGRI

OINTMENT OF BLACK HELLEBORE

Take of—

Black Hellebore Leaves .	Of each, equal parts.
Common Turpentine . .	
Prepared Lard	

Melt the turpentine and the lard together in a water-bath, add the hellebore, and digest for one hour; then remove the mixture and express through calico.

Uses.—Digestive to wounds of cattle.

UNGUENTUM HYDRARGYRI

OINTMENT OF MERCURY

Synonym.—Blue Ointment.

Take of—

Mercury	1 pound.
Prepared Lard	1 pound.
Prepared Suet	1 ounce.

Rub them together until metallic globules cease to be visible, when a small portion of the ointment is rubbed with the finger on brown paper.

Uses.—In scab, mange, and other scurfy cutaneous affections; to indolent sores and ulcers; as a resolvent in glandular enlargements; and applied to the skin with friction to expedite and maintain the constitutional effects produced by the internal administration of mercury. For skin affections, however, the next preparation is generally used.

UNGUENTUM HYDRARGYRI AMMONIATI

OINTMENT OF AMMONIATED MERCURY

Take of—

Ammoniated Mercury	1 ounce.
Prepared Lard	6 to 8 ounces.

Mix thoroughly.

Uses.—To destroy pediculi and acari.

UNGUENTUM HYDRARGYRI COMPOSITUM

COMPOUND OINTMENT OF MERCURY

Take of—

Ointment of Mercury	1 ounce.
Soft Soap	2 ounces.

Mix thoroughly.

Uses.—See Unguentum Hydrargyri.

UNGUENTUM HYDRARGYRI IODIDI RUBRI*

OINTMENT OF RED IODIDE OF MERCURY

Synonyms.—Unguentum Hydrargyri Biniodidi; Ointment of Biniodide of Mercury; Blistering Ointment.

Take of—

Red Iodide of Mercury, in fine powder	1 ounce.†
Prepared Lard	8 ounces.

Mix thoroughly.

Uses.—Caustic, stimulant, and detergent to unhealthy sores; counter-irritant; also resolvent in the treatment of curbs, splints, incipient spavins, and enlarged bursæ.

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* This preparation is nearly three and a half times stronger than Unguentum Hydrargyri Iodidi Rubri of the 'British Pharmacopœia.'

† An ointment containing twice this quantity of iodide of mercury forms a powerful counter-irritant when applied to the skin of the ox.

UNGUENTUM HYDRARGYRI NITRATIS

OINTMENT OF NITRATE OF MERCURY

Synonym.—Citrine Ointment.

Take of—

Mercury, by weight . . .	4 ounces.
Nitric Acid	12 fluid ounces.
Prepared Lard	15 ounces.
Olive Oil	32 fluid ounces.

Dissolve the mercury in the nitric acid with the aid of a gentle heat.

Mercury.		Nitric Acid.		Mercuric Nitrate.		Nitric Oxide.		Water.
Hg_3	$+$	$8HNO_3$	$=$	$3Hg(NO_3)_3$	$+$	$2NO$	$+$	$4H_2O$

Melt the lard in the oil by a steam- or water-bath, in a porcelain vessel capable of holding six times the quantity, and, while the mixture is hot, add the solution of mercuric nitrate, also hot, mixing them thoroughly. If the mixture does not froth up, increase the heat till this occurs. Keep it stirred until it is cold.

Uses.—Stimulant and detergent in grease, ringworm, and other skin affections. One part of this ointment, mixed with one part of lard and one of olive oil, is employed in the treatment of tarsal ophthalmia, and for the removal of nebulæ from the cornea.

UNGUENTUM HYDRARGYRI PERCHLORIDI

OINTMENT OF PERCHLORIDE OF MERCURY

Take of—

Perchloride of Mercury, in fine powder	1 ounce.
Prepared Lard	2 ounces.

Mix thoroughly.

Uses.—Spread on leather for the removal of bony tumours. One part of this ointment, mixed with two parts of lard, is used for dressing Professor Varnell's caustic clams.

UNGUENTUM IODI

OINTMENT OF IODINE

Take of—

Iodine	1 ounce.
Prepared Lard	8 ounces.

Mix thoroughly.

Uses.—Stimulant and resolvent.

UNGUENTUM IODI COMPOSITUM

COMPOUND OINTMENT OF IODINE

Take of—

Iodine	½ ounce.

Iodide of Potassium, in fine powder	1 ounce.
Prepared Lard	8 ounces.

Mix thoroughly.

Uses.—Stimulant and resolvent.

UNGUENTUM MYLABRIDIS

OINTMENT OF MYLABRIS

Take of—

Mylabris, in fine powder . . .	1 ounce.
Prepared Lard	4 ounces.

Digest the mylabris and the lard together over a water-bath for three hours, with occasional stirring; while hot, filter through paper, and allow the clear liquid to cool.

Uses.—Same as those of Unguentum Cantharidis.

UNGUENTUM PICIS LIQUIDÆ

OINTMENT OF TAR

Take of—

Common Tar . . .	Of each, equal parts.
Resin	
Prepared Lard . . .	

Melt together with a gentle heat, and stir the mixture while it cools.

Uses.—In foot-rot in sheep, and as a foot ointment for all other domesticated animals.

UNGUENTUM POTASSÆ SULPHURATÆ

OINTMENT OF SULPHURATED POTASH

Take of—

Sulphurated Potash, in fine powder	1 ounce.
Prepared Lard	8 ounces.

Triturate the sulphurated potash in a porcelain mortar, and gradually add the lard, rubbing them together until the ointment is perfectly smooth and free from grittiness. This ointment, when used, should be recently prepared.

Uses.—In mange and other skin affections.

UNGUENTUM RESINÆ

OINTMENT OF RESIN

Synonym.—Digestive Ointment.

Take of—

Resin, in coarse powder . . .	8 ounces.
Yellow Wax	6 ounces.
Almond Oil	3 ounces.
Prepared Lard	3 ounces.

Melt with a gentle heat, strain the mixture, while hot, through flannel, and stir constantly while it cools.

Uses.—Stimulant to ulcers, wounds, blistered surfaces, and to impart consistency to other ointments.

UNGUENTUM SABINÆ

OINTMENT OF SAVIN

Take of—

Savin Tops, bruised	1 ounce.
Prepared Lard	2 ounces.

Melt the lard and the wax together on a water-bath, add the savin, and digest for twenty minutes. Then remove the mixture, and express through calico.

Uses.—Irritant to blistered surfaces, and for the removal of warts.

UNGUENTUM SULPHURIS

OINTMENT OF SULPHUR

Take of—

Sublimed Sulphur	2 ounces.
Prepared Lard	16 ounces.

Mix.

Uses.—For scab in sheep, &c.

UNGUENTUM SULPHURIS COMPOSITUM

COMPOUND OINTMENT OF SULPHUR

Synonym.—Sheep Ointment.

Take of—

Sublimed Sulphur	1 pound.
Common Turpentine	4 ounces.

Ointment of Mercury	2 ounces.
Linseed Oil	1 pint.

Melt the oil and turpentine together over a water-bath; when the mixture is nearly cold, stir in the sulphur, and afterwards the ointment of mercury, until the whole is thoroughly mixed.

Uses.—For eradicating scab in sheep.

UNGUENTUM SULPHURIS IODIDI

OINTMENT OF IODIDE OF SULPHUR

Take of—

Iodide of Sulphur, in fine powder .	1 ounce.
Prepared Lard	8 ounces.

Triturate the iodide of sulphur in a porcelain mortar, and gradually add the lard, rubbing them together until the ointment is perfectly smooth and free from grittiness.

Uses.—In mange, urticaria, and other skin diseases.

UNGUENTUM TEREBINTHINÆ

OINTMENT OF TURPENTINE

Synonym.—Digestive Ointment.

Take of—

Common Turpentine	1 ounce.
Prepared Lard	3 ounces.

Melt together over a water-bath, and mix thoroughly by stirring, and cool.

Uses.—Stimulant to wounds.

UNGUENTUM VERATRI

OINTMENT OF WHITE HELLEBORE

Take of—

White Hellebore Root, dried, and in fine powder	1 ounce.
Prepared Lard	4 ounces.

Thoroughly mix.

Uses.—Applied to the skin as a parasiticide, and for charging materials to be used as setons.

UNGUENTUM ZINCI CARBONATIS

OINTMENT OF CARBONATE OF ZINC

Synonym.—Healing Ointment.

Take of—

Carbonate of Zinc, in fine powder	1 ounce.
Prepared Lard	6 ounces.

Mix thoroughly.

Uses.—Desiccant and mild astringent to slight excoriations.

UNGUENTUM ZINCI OXYDUM

OINTMENT OF OXIDE OF ZINC

Take of—

Oxide of Zinc	3 ounces.
Prepared Lard	15 ounces.

Mix.

Uses.—Employed in slight excoriations and ulcerations.

VAPOR CHLORI

CHLORINE GAS

Composition.—An element; symbol Cl.

Modes of Preparation.—There are two methods commonly resorted to.

1st Method.—Put three or four ounces of powdered manganese peroxide into a flask, basin, or other suitable vessel, make it into a thin paste with strong hydrochloric acid, and apply a gentle heat to the mixture.

Manganese Peroxide.		Hydrochloric Acid.		Chlorine.		Manganese Chloride.		Water.
MnO_2	+	$4HCl$	=	Cl_2	+	$MnCl_2$	+	$2H_2O$

2nd Method.*—Take of—

Sodium Chloride (common salt) in fine powder	2½ ounces.
Manganese Peroxide, in fine powder	2 ounces.
Strong Sulphuric Acid	2½ fluid ounces.
Water	5 fluid ounces.

Intimately mix the manganese peroxide and sodium chloride, and place them in a flask, basin, &c. Four the sulphuric acid into the water contained in porcelain, earthenware, or thin glass vessel. Add the diluted sulphuric acid to the mixture of manganese peroxide and sodium chloride, and thoroughly stir or shake them together.

If necessary, the evolution of chlorine may be promoted by the application of a gentle heat.

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* Chlorine may also be evolved by pouring diluted sulphuric or hydrochloric acid on chlorinated lime.

$$\underset{\text{Sodium Chloride.}}{2NaCl} + \underset{\text{Manganese Peroxide.}}{MnO_2} + \underset{\text{Sulphuric Acid.}}{2H_2SO_4} = \underset{\text{Chlorine.}}{Cl_2} + \underset{\text{Sodium Sulphate.}}{Na_2SO_4}$$

$$+ \underset{\text{Manganese Sulphate.}}{MnSO_4} + \underset{\text{Water.}}{2H_2O}$$

Characters and Tests.—Heavy greenish-yellow gas, with a peculiar odour, and producing great irritation when breathed. Bleaches blue litmus paper and develops a blue colour (starch iodide) when brought in contact with paper imbued with a mixture of starch and potassium iodide.

Actions and Uses.—Chiefly employed for disinfecting the air of stables and other buildings. Occasionally used as a therapeutic in glanders, farcy, and similar affections, in which cases it first increases, but ultimately diminishes, the secretion of the nasal membrane. It has also been recommended as an antidote to poisoning by hydrocyanic acid and sulphuretted hydrogen.

Modes of Application.—As an aërial disinfectant, the apparatus is to be placed in the stable, &c.; the doors and other openings should be closed for several hours during the generation of the gas, and afterwards opened for some time previously to the entrance of any person.

When the gas is to be inhaled the patient should be placed in a loose box, along with the apparatus containing one of the mixtures above described. As soon as the gas begins to exert its irritating effects upon the attendant he should withdraw, remove the apparatus, and close the door of the box.

Antidotes.—Coughing, and other symptoms of the irritant effects of chlorine, may be allayed by inhaling the vapour of ammonia, ether, alcohol, or hot water.

VERATRUM

WHITE HELLEBORE

The rhizome of *Veratrum album.* A native of the mountainous regions of Central and Southern Europe.

Natural Order.—*Melanthaceæ.*

Composition.—Its medicinal activity is attributed to an alkaloid named *veratria*, $C_{32}H_{52}N_2O_8$.

Characters.—Usually consists of the rhizome with the radicles attached; in pieces of from two to three inches long, about the thickness of the little finger; covered with a rough dark brown bark; greyish white internally. In the fresh state it emits a strong disagreeable odour, which it nearly loses by drying, but it retains its acrid, intensely bitter taste.

Actions and Uses.—*Internally:*—In excessive doses, an irritant poison; in medicinal doses nauseant, emetic, sedative, purgative, and anthelmintic. Given sometimes to the horse as a sedative, and as an excitant to promote absorption in œdematous enlargements of the legs. *Externally:* —Applied to the skin as a parasiticide; also in the cure of mange and other cutaneous diseases.

Doses.—Horse:—*As a sedative,* 20 to 30 grains every four or six hours, until its depressant action is manifested. *As an excitant,* ½ to 1 ounce.

Modes of Application.—*Internally:*—In the form of bolus, or tincture made with proof spirit. *Externally:*—The powdered rhizome, or Unguentum Veratri.

Antidotes.—Demulcent drinks; also tannic acid, and vegetable astringents containing it. If coma be present, ammonia, or some powerful alcoholic stimulant, should be administered.

Preparation.—Unguentum Veratri.

VINUM FERRI

WINE OF IRON

Composition.—A weak solution of ferrous tartrate, malate, and acetate in sherry.

Take of—

Fine Iron Wire (about No. 35) .	1 ounce.
Sherry	1 pint.

Macerate for thirty days in a closed vessel, the iron being almost, but not quite, wholly immersed in the wine; frequently shake the vessel, remove the stopper after each shaking, and filter.

Use.—Tonic.

Dose.—Dog, 1 to 4 fluid drachms two or three times a day.

ZINCI ACETAS

ACETATE OF ZINC

Synonym.—Zinc Acetate.

Composition.—$Zn(C_2H_3O_2)_2 . 2Aq$.

Mode of Preparation.—Take of—

Carbonate of Zinc	2 ounces.
Acetic Acid	5 fluid ounces, or a sufficiency.
Distilled Water	6 fluid ounces.

Add the carbonate of zinc in successive portions to three ounces of the acetic acid, previously mixed with the water in a flask; heat gently; add by degrees the remainder of the acid till the carbonate is dissolved; boil for a few minutes, filter while hot, and set it aside for two days to crystallize. Decant the mother-liquor; evaporate to one half, and again set it aside for two days to crystallize. Place the crystals (zinc acetate) in a funnel to drain, then spread them on filtering-paper on a porous tile, and dry them by exposure to the air at ordinary temperatures.

$$\begin{array}{ccccccccc} \text{Zinc Carbonate.} & & \text{Acetic Acid.} & & \text{Zinc Acetate.} & & \text{Carbonic Anhydride.} & & \text{Water.} \\ ZnCO_3 & + & 2C_2H_4O_2 & = & Zn(C_2H_3O_2)_2 & + & CO_2 & + & H_2O \end{array}$$

In the act of crystallising the salt takes up two molecules of water.

Characters and Tests.—Thin, translucent, and colourless crystalline plates, of a pearly lustre, with a sharp unpleasant taste; evolving acetic acid (recognisable by the characteristic odour of its vapour) when decomposed by sulphuric acid; soluble in water, forming a solution which gives a white precipitate (zinc sulphide) with sulphuretted hydrogen. A dilute aqueous solution should not be affected by barium chloride (showing the absence of sulphate), or by silver nitrate (showing the absence of chlorides); and when slightly acidulated with hydrochloric acid, it should furnish no precipitate with sulphuretted hydrogen. After it has been boiled for a few minutes with a little nitric acid (to convert into ferric salt any ferrous compound that may be present), it yields, with ammonia, a white precipitate (zinc hydrate), which is soluble, without colour (if iron be absent), in an excess of the reagent.

Uses.—*Externally:*—Stimulant and astringent to wounds, especially those accompanied by profuse discharges; also to allay superficial inflammation. A wash-leather bandage, saturated with a watery solution of acetate of zinc, is used to reduce the swellings on the legs of hunters.

Modes of Application.—A lotion consisting of twenty-five to fifty grains of the acetate dissolved in one pint of cold water, and applied as soon after the solution of the salt as possible.

ZINCI CARBONAS*

CARBONATE OF ZINC

Composition.— A mixture or compound of zinc carbonate and zinc hydrate, $ZnCO_3 . 2Zn(HO)_2$.

Mode of Preparation.—Take of—

Sulphate of Zinc	10 ounces.
Carbonate of Soda	10½ ounces.
Boiling Distilled Water . . .	a sufficiency.

Dissolve the carbonate of soda with a pint of the water in a capacious porcelain vessel, and pour into it the sulphate of zinc, also dissolved in a pint of the water, stirring diligently. Boil for fifteen minutes after effervescence (escape of carbonic anhydride) has ceased, and let the precipitate (carbonate of zinc, B.P.) subside. Decant the supernatant liquid, pour on the precipitate three pints of boiling distilled water, agitating briskly; let the precipitate again subside, and repeat the processes of affusion of hot distilled water and subsidence till the washings are no longer precipitated by barium chloride, showing that sulphate of zinc is completely removed from the carbonate. Collect the precipitate on calico, let it drain, and dry it with a gentle heat.

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* In veterinary practice the native greyish-brown zinc carbonate (Calamine) is generally used, after it has been partially purified by levigation. It is then known as "Prepared Calamine."

$$\overset{\substack{\text{Zinc}\\\text{Sulphate.}}}{3ZnSO_4} + \overset{\substack{\text{Sodium}\\\text{Carbonate.}}}{3Na_2CO_3} + \overset{\text{Water.}}{2H_2O} = \overset{\substack{\text{Carbonate of}\\\text{Zinc, B.P.}}}{ZnCO_3 \cdot 2Zn(HO)_2}$$

$$+ \overset{\substack{\text{Sodium}\\\text{Sulphate.}}}{3Na_2SO_4} + \overset{\substack{\text{Carbonic}\\\text{Anhydride.}}}{2CO_2}$$

Characters and Tests.—White, tasteless, inodorous; insoluble in water, soluble with effervescence and without residue in diluted nitric acid. This solution should not be affected by barium chloride, showing the absence of sulphates, or silver nitrate, showing the absence of chlorides, and gives with ammonium carbonate a white precipitate (zinc carbonate and hydrate), entirely soluble, without colour (if iron be absent), in an excess of the reagent, forming a solution which furnishes a white precipitate (zinc sulphide) with ammonium sulphide, showing the presence of zinc.

Actions and Uses.—*Externally*:—Desiccant, stimulant, and astringent.

Mode of Application.—The powder dusted over the wounds, &c., or Unguentum Zinci Carbonatis.

Preparations.—Unguentum Zinci Carbonatis; Zinci Acetas; Zinci Oxidum.

ZINCI CHLORIDUM

CHLORIDE OF ZINC

Synonyms.—Zinc Chloride; Butter of Zinc.*

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* The author's disinfectant "Sporokton, Liquid No. 1," is an aqueous solution of zinc chloride saturated with sulphurous acid gas (see *Acidum sulphurosum*).

Mode of Preparation.—Take of—

Granulated Zinc	16 ounces.
Hydrochloric Acid	44 fluid ounces.
Solution of Chlorine	a sufficiency.
Carbonate of Zinc	½ ounce, or a sufficiency.
Distilled Water	1 pint.

Put the zinc into a porcelain basin, add by degrees the hydrochloric acid, previously mixed with the water, and aid the action by gently warming it on a sand-bath until gas (hydrogen) is no longer evolved. Boil for half an hour, supplying the water lost by evaporation, and allow it to stand on a cool part of the sand-bath for twenty-four hours, stirring frequently. Filter the product into a gallon bottle, and pour in the solution of chlorine, by degrees, with frequent agitation (to convert any ferrous chloride into ferric chloride), until the fluid acquires a permanent odour of the gas. Add the carbonate of zinc (to precipitate iron and lead, if present) in small quantities at a time, and with renewed agitation, until a brown sediment (ferric hydrate and lead peroxide) appears. Filter through paper into a porcelain basin, and evaporate until a portion of the liquid, withdrawn on the end of a glass rod and cooled, forms an opaque, white, solid (zinc chloride). Pour it now into proper moulds, and, when the salts has solidified, but before it has cooled, place it in closely stoppered bottles.

$$\begin{array}{ccccccc} \text{Zinc.} & & \text{Hydrochloric Acid.} & & \text{Zinc Chloride.} & & \text{Hydrogen.} \\ Zn & + & 2HCl & = & ZnCl_2 & + & H_2 \end{array}$$

Characters and Tests.—Colourless opaque rods or tablets, very deliquescent and caustic; almost entirely soluble in water, alcohol, and ether. The watery solution gives a white precipitate (zinc sulphide) with ammonium sulphide, showing the presence of zinc; also a white precipitate (silver chloride) with silver nitrate, indicating that the salt is a chloride; if first acidulated with hydrochloric acid, it is not affected by sulphuretted hydrogen. Its aqueous solution should give no precipitate with barium chloride, showing the absence of sulphates, or ammonium oxalate, showing the absence of calcium, and should not be tinged blue by potassium ferro- or ferri-cyanide, showing the absence of iron. Ammonia throws down a white precipitate (zinc hydrate), entirely soluble in an excess of the reagent.

Uses.—In the solid state, or in the form of concentrated solution, as a caustic and deodoriser in canker, quittor, foot-rot in sheep, fistulæ, ill-conditioned wounds, phagedænic ulcers, luxuriant granulations, &c. In the form of Liquor Zinci Chloridi it is applied to wounds as an astringent, stimulant, and antiseptic; to the skin of horses and dogs as a parasiticide, and in eczema; also as a "dip" or "wash" for killing ticks and preventing the attacks of the fly on sheep. For deodorizing and disinfecting stables, manure heaps, &c.

Preparation.—Liquor Zinci Chloridi.

ZINCI OXIDUM

OXIDE OF ZINC

Synonym.—Zinc Oxide.

Composition.—ZnO.

Mode of Preparation.—Carbonate of zinc is exposed to a dull red heat in a loosely covered Hessian crucible, until a portion taken from the centre of the contents of the crucible and cooled no longer effervesces when dropped into dilute sulphuric acid, showing that the expulsion of carbonic anhydride is complete. Let the crucible cool, and transfer the product (zinc oxide) to a stoppered bottle.

$$\begin{array}{ccccc} \text{Zinc} & & \text{Zinc} & & \text{Carbonic} \\ \text{Carbonate.} & & \text{Oxide.} & & \text{Anhydride.} \\ ZnCo_3 & = & ZnO & + & CO_2 \end{array}$$

Characters and Tests.—Soft, nearly white, tasteless, and inodorous powder, becoming pale yellow when heated. Dissolves without effervescence in diluted nitric acid, showing absence of carbonate, forming a solution which is not affected by barium chloride, showing the absence of sulphates, or silver nitrate, showing the absence of chlorides, and gives with ammonium carbonate a white precipitate, zinc carbonate and hydrate, which dissolves entirely without colour (if iron be absent) in an excess of the reagent, forming a solution which gives a white precitate (zinc sulphide) with ammonium sulphide, indicating the presence of zinc.

Uses.—*Externally*:—Astringent and desiccant to ichorous ulcers, excoriations, &c.

Mode of Application.—In the form of powder.

ZINCI SULPHAS

SULPHATE OF ZINC

Synonyms.—Zinc Sulphate; White Vitriol.

Composition.—$ZnSO_4 \, . \, 7Aq.$

Mode of Preparation.—Take of—

Granulated zinc . . .	16 ounces.
Sulphuric Acid . . .	12 fluid ounces.
Distilled Water . . .	4 pints.
Solution of chlorine .	a sufficiency.
Carbonate of Zinc . .	½ ounce, or a sufficiency.

Pour the sulphuric acid, previously mixed with the water, on the zinc, contained in a porcelain basin, and, when effervescence (escape of hydrogen) has nearly ceased, aid the action by a gentle heat. Filter the fluid into a gallon bottle, and add gradually, with constant agitation, the solution of chlorine[*] until the fluid acquires a permanent odour of chlorine. Add now, with continued agitation, carbonate of zinc,[*] until a brown precipitate (ferric hydrate and lead peroxide) appears; let it settle, filter the solution, evaporate till a pellicle forms on the surface, and set aside to crystallize. Dry the crystals (zinc sulphate) by exposure to the air on filtering-paper placed on porous tiles. More crystals may be obtained by again evaporating the mother-liquor.

$$\overset{\text{Zinc.}}{Zn} + \overset{\text{Sulphuric Acid.}}{H_2SO_4} = \overset{\text{Zinc Sulphate.}}{ZnSO_4} + \overset{\text{Hydrogen.}}{H_2}$$

In the act of crystallising, the salt acquires seven molecules of water.

Characters and Tests.—Colourless, transparent, prismatic crystals, strongly resembling sulphate of magnesia, but with a metallic styptic taste. Its aqueous solution gives a white precipitate (zinc sulphide) with ammonium sulphide, indicating the presence of zinc, and a white precipitate (barium sulphate) with barium chloride, insoluble in nitric acid, showing that the salt is a sulphate. Its watery solution should give no bluish-black precipitate or coloration with tincture of galls, showing the absence of iron, and when acidulated with hydrochloric acid it should not be affected by sulphuretted hydrogen. After it has been boiled for a few minutes with a little nitric acid (to convert into ferric salt any ferrous compound that may be present), it should yield with ammonium hydrate a white precipitate (zinc hydrate), which is entirely soluble, without colour, showing absence of iron, in an excess of the reagent.

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[*] The uses of the chlorine water and carbonate of zinc are explained under Zinci Chloridum.

Actions and Uses.—*Internally*:—In excessive doses, irritant poison; in medicinal doses, astringent and tonic. Also emetic when given in sufficient quantity to the pig or dog. *Externally*:—Astringent, excitant, mild escharotic, and desiccant, when applied to wounds, injected into sinuses, and in quittor.

Doses.—*Tonic*:—HORSE, 1 to 2 drachms.—CATTLE, 2 to 3 drachms.—SHEEP, 20 to 30 grains.—PIG, 10 to 20 grains. —DOG, 2 to 5 grains.

Emetic:—PIG, 30 to 50 grains.—DOG, 8 to 15 grains.

Modes of Application.—*Internally*:—As a tonic, in the form of bolus or dissolved in water; as an emetic, dissolved in tepid water. *Externally*:—In the state of powder or dissolved in water, the solution varying in strength from half an ounce to seven ounces of the salt to a pint of distilled water, according to the purpose for which the lotion is required.

Incompatibles.—Alkalies and their carbonates; lime water; acetate of lead; nitrate of silver; astringent vegetable infusion; and milk.

Antidotes.—Where possible, warm demulcent drinks, to promote the evacuation of the poison by vomiting.

Preparation.—Zinci Carbonas.

ZINCUM GRANULATUM

GRANULATED ZINC

Composition.—An element, symbol Zn.

Zinc of commerce is heated just sufficiently high to melt it, and the fused metal is poured in a thin stream into a vessel containing about two gallons of cold water. The granulated zinc is to be removed from the water and dried.

Preparations.—Liquor Zinci Chloridi; Zinci Chloridum; Zinci Sulphas.

ZINGIBER

GINGER

The scraped and dried rhizome of *Zingiber officinale*, obtained from plants cultivated in the West Indies, India, and other countries.

Natural Order.—*Zingiberaceæ.*

Composition.—Its medicinal properties are attributed to the volatile oil and soft dried resin which it contains.

Characters.—Irregularly lobed decorticated pieces, three or four inches long, subcompressed, yellowish white, but not chalky, on the surface; has a short mealy fracture, hot taste, and agreeable aroma. Powder yellowish-white.

Actions and Uses.—Stimulant, stomachic, carminative, and tonic. Given in flatulent colic and debility of the stomach and intestines; also combined with cathartics to increase their activity and to prevent griping.

Doses.—Horse, 2 to 4 drachms.—Cattle, 2 to 6 drachms.—Sheep, ½ to 2 drachms.—Pig, ½ to 1 drachm —Dog, 10 to 30 grains.

Mode of Application.—In the form of bolus, or as Tinctura Zingiberis.

Preparations.—Massa Aloes; Syrupus Rhamni; Tinctura Zingiberis.

APPENDIX

SYMBOLS AND EQUIVALENT WEIGHTS OF THE ELEMENTARY BODIES MENTIONED IN THIS WORK.

Elementary Bodies.	Symbols and Equivalents.
Aluminum	**Al** = 27·5
Antimony (Stibium)	**Sb** = 122
Arsenic	**As** = 75
Barium	**Ba** = 137
Bismuth	**Bi** = 210
Boron	**B** = 11
Bromine	**Br** = 80
Cadmium	**Cd** = 112
Calcium	**Ca** = 40
Carbon	**C** = 12
Chlorine	**Cl** = 35·5
Chromium	**Cr** = 52·5
Copper (Cuprum)	**Cu** = 63·5
Gold (Aurum)	**Au** = 196·5
Hydrogen	**H** = 1
Iodine	**I** = 127
Iron (Ferrum)	**Fe** = 56
Lead (Plumbum)	**Pb** = 207
Magnesium	**Mg** = 24
Manganese	**Mn** = 55
Mercury (Hydrargyrum)	**Hg** = 200
Nitrogen	**N** = 14
Oxygen	**O** = 16
Phosphorus	**P** = 31
Platinum	**Pt** = 197
Potassium (Kalium)	**K** = 39
Silver (Argentum)	**Ag** = 108
Sodium (Natrium)	**Na** = 23
Sulphur	**S** = 32
Tin (Stannum)	**Sn** = 118
Zinc	**Zn** = 65

WEIGHTS AND MEASURES OF THE BRITISH PHARMACOPŒIA*

WEIGHTS

1 Grain	gr.		
1 Ounce	oz.	=	437·5 grains
1 Pound	lb. = 16 ounces	=	7000 „

MEASURES OF CAPACITY

1 Minim	min.		
1 Fluid Drachm	fl. drm.	=	60 minims
1 Fluid Ounce	fl. oz.	=	8 fluid drachms
1 Pint	O.	=	20 fluid ounces
1 Gallon	C.	=	8 pints

MEASURES OF LENGTH

1 line = $\frac{1}{12}$ inch

1 inch = $\frac{1}{39{\cdot}1393}$ seconds pendulum.

12 „ = 1 foot

36 „ = 3 feet = 1 yard

Length of pendulum vibrating seconds of mean time in the latitude of London, in a vacuum at the level of the sea . . } 39·1393 inches

RELATION OF MEASURES TO WEIGHTS

1 Minim is the measure of			0·91	grains of water
1 Fluid Drachm	„		54·68	„
1 Fluid Ounce	„	1 ounce or	437·5	„
1 Pint	„	1·25 pounds or	8750·0	„
1 Gallon	„	10 pounds or	70,000·0	„

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* Although the drachm of sixty grains is discarded by the Editors of the 'British Pharmacopœia,' the Author has retained it in the body of this work in consequence of its being a convenient, commonly employed, and well known quantity in Veterinary Medicine.

WEIGHTS AND MEASURES OF THE METRICAL SYSTEM.

WEIGHTS

1 Milligramme = the thousandth part of one grm. or 0·001 grm.
1 Centigramme = the hundredth „ 0·01 „
1 Decigramme = the tenth „ 0·1 „
1 Gramme = the weight of a cubic centimetre of water at 4° C. 1·0 „
1 Decagramme = ten grammes „ 10·0 grms.
1 Hectogramme = one hundred grammes „ 100·0 „
1 Kilogramme = one thousand grammes „ 1000·0 „

MEASURES OF CAPACITY

1 Millilitre = 1 cub. centim. or the mea. of 1 grm. of water
1 Centilitre = 10 „ 10 grms. „
1 Decilitre = 100 „ 100 „ „
1 Litre = 1000 „ 1000 „ (1 kilo.)

MEASURES OF LENGTH

1 Millimetre = the thousandth part of one metre, or 0·001 metre
1 Centimetre = the hundredth „ 0·01 „
1 Decimetre = the tenth „ 0·1 „
1 Metre = the ten-millionth part of a quarter of the meridian of the earth.

RELATION OF THE WEIGHTS OF THE BRITISH PHARMACOPŒIA TO THE METRICAL WEIGHTS

1 Pound = 453·5925 grammes.
1 Ounce = 28·3495 „
1 Grain = 0·0648 „.

RELATION OF MEASURES OF CAPACITY OF THE BRITISH PHARMACOPŒIA TO THE METRICAL MEASURES

1 Gallon =4·543487 litres.
1 Pint =0·567936 „ or 567·936 cubic centimetres
1 Fluid Ounce =0·028396 „ 28·396 „
1 Fluid Drachm =0·003549 „ 3·549 „
1 Minim =0·000059 „ 0·059 „

RELATION OF THE METRICAL WEIGHTS TO THE WEIGHTS OF THE BRITISH PHARMACOPŒIA

1 Milligramme = 0·015432 grs.
1 Centigramme = 0·15432 „
1 Decigramme = 1·5432 „
1 Gramme = 15·432 „
1 Kilogramme = 2 lbs. 3 oz. 119·8 grs. or 15432·348 „

RELATION OF THE METRICAL MEASURES TO THE MEASURES OF THE BRITISH PHARMACOPŒIA

1 Millimetre = 0·03937 inches
1 Centimetre = 0·39371 „
1 Decimetre = 3·93708 „
1 Metre = 39·37079 „ or 1 yard 3·7 inches
1 Cubic Centimetre = 15·432 grain-measures
1 Litre=1 pint 15 oz. 2 drs. 11 m. or 15432·348 grain measures

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TO

VETERINARY MEDICINES

ARRANGED ACCORDING TO THEIR

ACTIONS AND USES

INDEX

TO

VETERINARY MEDICINES

Arranged according to their Actions and Uses

Adhesives (*adhæreo,* to stick to).—Agents employed to keep the edges of wounds together.

Collodium.
Collodium Flexile.
Emplastrum Picis.

Alteratives (*altero,* to change).—Medicines which gradually change the condition and functions of organs from a diseased to a healthy state.

Acidum Arseniosum.
— Nitro-hydrochloricum.
— — dilutum.
Ammonii Chloridum.
Antimonii Sulphuratum.
— Tartaratum.
Argenti Nitras.
Ferri Iodidum.
Hydrargyri Perchloridum.
— Subchloridum.
Hydrargyrum cum Cretâ.
Iodum.
Liquor Arsenicalis.
Oleum Morrhuæ.
Pilula Hydrargyri et Ferri.
Potassa Sulphurata.
Potassii Iodidum.
Pulvis Antimonialis.
Sodæ Bicarbonas.
— Carbonas.
— — exsiccata.
Sodii Chloridum.
Sulphur Sublimatum.
Sulphuris Iodidum.
Tinctura Colchici Seminis.
— Iodi.
Unguentum Hydrargyri.
— — compositum.
— — Iodidi Rubri.
— — Nitratis.
— Iodi.
— — compositum.
— Sulphuris Iodidi.
Zinci Chloridum.

Anæsthetics (*a, a,* privative, and *αισθητικὸς, aistheticos,* belonging to *αισθησις, aisthesis,* or sensation).—Agents which cause insensibility to pain.

Æther.
Chloroform.

Anodynes (α, *a*, privative, and ὀδύνη, *odyne*, pain).—Agents which allay or diminish pain.

Æther.
Enema Opii.
Extractum Aconiti.
— Hyoscyami.
Hyoscyami Folia.
Linimentum Aconiti.
— Belladonnæ.
— Camphoræ.
— Chloralis Hydras.
— Chloroformi.
— Opii.
Opium.
Spiritus Ætheris.
Spiritus Ætheris Nitrosi.
— Camphoræ.
— Chloroformi.
Syrupus Papaveris.
Tinctura Aconiti.
— Belladonnæ.
— Chloroformi composita.
— Hyoscyami.
— Opii.
Unguentum Aconiti.
— Gallæ.
— — cum Opio.
— Veratri.

Antacids (ἀντὶ, *anti*, against, and ακίς, *akis*, a point).—Agents which neutralize acidity.

Ammoniæ Carbonas.
Calcis Carbonas.
Calx.
Creta Præparata.
Liquor Ammoniæ.
— Calcis.
— — Saccharatus.
Magnesia.
Magnesiæ Carbonas.
Mistura Cretæ.
Potassæ Bicarbonas.
— Carbonas.
Sapo Durus.
— Mollis.
Sodæ Bicarbonas.
— Carbonas.
— — exsiccata.
Spiritus Ammoniæ Aromaticus.

Antemetics (ἀντὶ, *anti*, against, and εμετικα, *emetica*, from εμέω, *emeo*, I vomit).—Agents which check or allay vomition.

Acidum Carbolicum.
Caryophyllum.
Creasotum.
Magnesia.
Magnesiæ Carbonas.

Anthelmintics (ἀντὶ, *anti*, against, and ἕλμινς, *helmins*, a worm).—Agents which kill, expel, or prevent the return of worms.

Aloes.
Areca Semina.
Cambogia.
Cusso.
Enema Aloes.
Enema Terebinthinæ.
Filix Mas.
Kalmala.
Oleum Terebinthinæ.
Sodii Chloridum.

Antidotes (*ἀντὶ, anti,* against, and *διδῶμι, didomi,* I give).—Agents which counteract the injurious effects of poisons.

Antilithics (*ἀντὶ, anti,* against, and *λιθος, lithos,* a stone).—Agents which dissolve or prevent the formation of calculi and urinary deposits.

Acidum Hydrochloricum dilutum.
— Nitricum dilutum.
Acidum Nitro-hydrochloricum dilutum.

Antiparasitics (*ἀντὶ, anti,* against, and *παράσιτος, parasitos,* a parasite).—Agents which prevent the attacks of, or destroy parasites.

Acidum Arseniosum.
— Carbolicum.
— Sulphurosum.
Decoctum Tabaci.
Liquor Calcis Chloratæ.
Oleum Anisi.
Sapo Durus.
— Mollis.
Sodæ Arsenias.
Sulphur Sublimatum.
Sulphuris Iodidum.
Unguentum Hydrargyri Ammoniati.
— Sulphuris.
— — Iodidi.

Antiperiodics (*ἀντὶ, anti,* against, and *περίοδος, periodos,* a period).—Agents which counteract periodicity in disease, *e.g.* in intermittent fever.

Acidum Arseniosum.
Cinchonæ Flava Cortex.
— Pallidæ Cortex.
— Rubræ Cortex.
Decoctum Cinchonæ Flavæ.
Liquor Arsenicalis.
— Arsenici Hydrochlorici.
— Sodæ Arseniatis.
Piper Nigrum.
Quiniæ Sulphas.
Sodæ Arsenias.

Antiphlogistics (*ἀντὶ, anti,* against, and *φλέγω, phlegō,* I burn).—Agents which counteract inflammation. See Sedatives.

Antiseptics (*ἀντι, anti,* against, and *σηπτικος, septikos,* putrefying).—Agents which prevent, retard, or arrest putrefaction.

Acidum Arseniosum.
— Aceticum dilutum.
— Carbolicum.
— Sulphurosum.
Cataplasma Fermenti.
Cerevisiæ Fermentum.
Glycerinum Acidi Carbolici.
Liquor Acidi Carbolici.
Zinci Chloridi.

Antispasmodics (*ἀντι, anti,* against, and *σπασμος, spasmos,* a spasm).

—Agents which prevent or allay the irregular muscular contraction called spasm or cramp.

Æther.
Assafœtida.
Belladonnæ Folia.
Chloralis Hydras.
Chloroformum.
Cupri Sulphas.
Enema Assafœtidæ.
— Tabaci.
— Terebinthinæ.
Extractum Belladonnæ.
— Hyoscyami.
Ipecacuanha.
Spiritus Ætheris.
Spiritus Ætheris Nitrosi.
— Ammoniæ Aromaticus.
— — Fœtidus.
— Chloroformi.
Tinctura Assafœtidæ.
— Belladonnæ.
— Chloroforma composita.
— Opii.
Unguentum Belladonnæ.
Zinci Acetas.
— Carbonas.
— Oxidum.
— Sulphas.

Aperients (*aperio*, to open).—Agents which act gently on the bowels, so as to cause mild purgation. See Laxatives.

Aromatics (ἄρι, *ari*, intensely, and ὄζω, to smell).—Agents possessing an agreeable taste and odour, and which dispel flatus and allay pain in the alimentary canal.

Anethi Fructus.
Carui Fructus.
Cascarillæ Cortex.
Coriandri Fructus.
Enema Assafœtida.
Infusum Digitalis.
Mistura Cretæ.
Pimenta.
Piper Nigrum.
Spiritus Ætheris Nitrosi.
— Chloroformi.
Tinctura Zingiberis.

Arterial Sedatives.—Agents which lower the action of the heart and of the vascular system.

Digitalis and its preparations.
Plumbi Acetas.

Astringents (*ad*, to, and *stringo*, I bind).—Agents which cause a contraction of muscular tissue, promote the coagulation of albuminous fluids, and check secretion.

Acetum.
Acidum Carbolicum.
— Gallicum.
— Sulphuricum dilutum.
— Tannicum.
Alumen.
Borax.
Calcis Hydras.
Calx.
Catechu Pallidum.
Cinchonæ Flavæ Cortex.
Creasotum.

Astringents—*continued.*

Cupri Sulphas.
Ferri Peroxidum humidum.
— Sulphas.
Galla.
Gossypium.
Liquor Ferri Perchloridi fortior.
— Plumbi Subacetatis.
— — dilutus.
Myrrha.
Plumbi Acetas.
— Carbonas.
Quercus Cortex.
Sodii Chloridum.
Tinctura Catechu.
— Gallæ.
Unguentum Gallæ.
— — et Opii.
Zinci Acetas.
— Carbonas.
— Oxidum.
— Sulphas.
Ice and other cold applications.

Carminatives (*carmen*, a verse or charm).—Agents which were formerly supposed to possess the power of *charming* away flatulency and pain in the alimentary canal. See Aromatics.

Cathartics (*καθαίρω*, *kathairo*, I cleanse).—Agents which excite the bowels to increased peristaltic action, and enable them to eject their contents. See Laxatives, Drastics, Hydragogues, and Cholagogues.

Caustics (*καίω*, *kaio*, I burn).—Agents which, by chemical action, destroy the parts to which they are applied. The more powerful caustics produce an eschar (scab or crust), and are hence termed *Escharotics*.

Acidum Aceticum Glaciale.
— Arseniosum.
— Carbolicum.
— Hydrochloricum.
— Sulphuricum.
Alumen exsiccatum.
Argenti Nitras.
Calx.
Creasotum.
Cupri Sulphas.
Hydrargyri Iodidum Rubrum.
— Oxidum Rubrum.
Hydrargyri Perchloridum.
Liquor Ammoniæ fortior.
— Antimonii Chloridi.
— Ferri Perchloridi fortior.
— Hydrargyri Perchloridi.
— Zinci Chloridi.
Potassa Caustica.
Soda Caustica.
Tinctura Ferri Perchloridi.
— Iodidi composita.
Zinci Chloridum.

Chalybeates (*χάλυψ*, *chalyps*, iron).—Preparations of iron. See Hæmatinics.

Cholagogues, *Cholagogue Purgatives* (*χολή*, *cholé*, bile, and *ἄγογος*, *agogos*, an expeller).—Agents which have the reputation of increasing the secreting power of the liver and the flow of bile into the intestines. It is probable, however, that they simply cause an emptying of the gall-bladder. They also induce purgation.

Aloes.
Hydrargyri Subchloridi.
Hydrargyrum cum Cretâ.

Cordials.—See Aromatics.

Corrosives.—See Caustics.

Counter-irritants.—See Irritants.

Demulcents (*demulceo*, to soften). See Emollients.

Deobstruents (*de*, from, and *obstruo*, I stop up).—Agents which remove any obstruction in the body.

Potassii Iodidum.
Iodine.
Magnesiæ Sulphas.
Cambogia.

Deodorizers (*de*, from, and *odor*, a scent).—Agents which absorb or decompose fetid effluvia. See Antiseptics and Disinfectants.

Derivatives (*derivo*, to drain, to turn aside).—Agents which produce irritation in one part of the body, and relieve hyperæmia in a distant part. See Rubefacients, Epispastics, and Pustulants.

Desiccants (*dessico*, to dry up).—Agents which dry up mucous discharges and purulent secretions from ulcers and wounds.

Calcis Carbonas.
— Hydras.
Calx.
Catechu.
Creta Præparata.
Liquor Calcis.
Magnesia Carbonas.
Plumbi Acetas.
— Subacetas.
Unguentum Plumbi Acetatis.
— — Subacetatis.
— Potassæ Sulphuratæ.
— Zinci.
Zinci Oxidum.

Diaphoretics (διαφορέω, *diaphoreo*, to throw off). See Sudorifics.

Disinfectants (*dis*, indicating separation, and *inficio*, I infect.—Agents which render infectious matter inert.

Acidum Arseniosum.
— Carbolicum.
— Nitricum.
— Sulphurosum.
Calx Chlorata.
Carbo Ligni.
Cataplasma Calcis Chloratæ.
— Carbonis.
Liquor Calcis Chloratæ.
Potassæ Permanganatis.
Vapor Chlori.
Zinci Chloridi.

Discutients (*discutio*, I drive away).—Agents which disperse tumours or any coagulated fluids in the body.

Acidum Aceticum.
Ammonii Chloridum.
Camphor.
Spiritus Camphoræ.

Diuretics (*δία*, *dia*, through, and *οὐρεω*, *oureo*, I make water).—Agents which cause an increased secretion and discharge of urine.

Colchici Cormus.
— Semina.
Digitalis Folia.
Extractum Digitalis.
Liquor Ammoniæ Acetatis.
Magnesiæ Sulphas.
Oleum Terebinthinæ.
Pix Burgundica.
Potassæ Acetas.
— Bicarbonas.
Potassæ Carbonas.
— Chloras.
— Nitras.
Resina.
Sodæ Acetas.
— Bicarbonas.
— Carbonas.
Spiritus Ætheris Nitrosi.
Terebinthinæ Canadensis.
Tinctura Digitalis.

Drastics (*δραστίκος*, *drasticos*, effective, powerful).—Violent cathartics, which produce speedy and copious evacuations.

Cambogia.
Jalapa.
Oleum Crotonis.
Oleum Terebinthinæ.
Rhamni Succus.
Terebinthina Canadensis.

Ecbolics (*εκ*, *ek*, out of, and *βαλλω*, *ballo*, I throw).—Agents which cause the uterus to contract and expel its contents.

Ergota.
Infusum Ergotæ.

Emetics (*εμετικα*, *emetica*, from *εμέω*, *emeo*, I vomit).—Agents which cause vomition.

Antimonium Tartaratum.
Cupri Sulphas.
Ipecacuanha.
Zinci Acetas.
— Sulphas.

Emollients (*emollio*, to soften).—Agents which soften the part to which they are applied, and diminish irritation. When used internally, to protect the mucous membranes of the alimentary canal from the action of irritants, they are termed *Demulcents*.

Acacia Gummi.
Adeps Præparatus.
Albumen Ovi.
Amylum.
Cera Flava.
Collodium.
— Flexile.
Glycerinum.
Infusum Lini.
Lini Farina.
— Semina.
Mucilago Acaciæ.
Oleum Olivæ.
Sevum Præparatum.

Epispastics (ἐπισπάω, *epispao*, to draw to).—Agents which, when applied to the skin, produce a vesicle or blister.

Acetum Cantharidis.
Acidum Aceticum Glaciale.
Cantharis.
Linimentum Cantharidis.
Linimentum Crotonis.
Mylabris.
Unguentum Cantharidis.
— Mylabridis.

Escharotics (ἐσχαρόω, *escharoo*, to scab over).—See Caustics.

Excitants (*excitans*, exciting, stimulating).—See Stimulants.

Febrifuges (*febris*, a fever, and *fugo*, to drive away).—Agents which moderate or abate the violence of fevers.

Hæmatinics (αἱμάτινα, *hæmatina*, the red colouring matter of the blood).—Preparations of iron, which increase the number of red corpuscles in the blood.

Ferri Carbonis Saccharata.
— Iodidum.
— Peroxidum humidum.
Cambogia.
Ferri Sulphas.
Manganesii Oxidum Nigrum.
Pilula Hydrargyri et Ferri.

Hæmostatics (αἷμα, *aima*, blood, and στάσις, *stasis*, a standing).—See Styptics.

Hydragogues (ὕδωρ, *hudor*, water, and ἀγωγός, *agogos*, expeller).—Cathartics which have the power of causing a very large secretion of fluid from the mucous membrane of the intestines.

Hypnotics (ὕπνος, *hypnos*, sleep).—See Narcotics.

Irritants (*irrito*, to excite).—Agents which stimulate and irritate the skin or other part to which they are applied. See Derivatives, Rubefacients, Epispastics, and Pustulants.

Laxatives (*laxo*, to loosen.).—Mild cathartics.

Aloes.
Jalapa.
Magnesia.
Magnesiæ Carbonas.
— Sulphas.
Oleum Lini.
— Olivæ.
Oleum Ricini.
Potassæ Sulphas.
Rhamni Succus.
Rhei Radix.
Sodæ Sulphas.
Sulphur Sublimatum.
Theriaca.

Lithonlytics (λίθος, *lithos*, a stone, and λύω, *lyo*, to loosen).—See Antilithics.

Lithontryptics (λίθος, *lithos*, a stone, and *τρίπω*, *tripo*, to rub down).—See Antilithics.

Narcotics (*νάρκη*, *narke*, stupor).—Agents which allay pain and produce sleep.

Chloroformum.
Opium.
Tinctura Opii.

Nutritives (*nutrio*, to nourish).—Agents which facilitate the assimilative process, and improve the condition of the tissues.

Oleum Lini.
— Morrhuæ.
Oleum Olivæ.
Sevum Præparatum.

Parturients (*parturio*, to bring forth).—See Ecbolics.

Peptics (*πέπτω*, *pepto*, to digest).—See Aromatics.

Purgatives (*purgo*, to cleanse).—See Cathartics.

Pustulants (*πῦον*, *pyon*, pus).—Agents which, when applied to the skin, produce a pustule.

Antimonium Tartaratum.
Argenti Nitras.
Oleum Crotonis.

Refrigerants (*refrigero*, to cool).—Agents which diminish heat, lower the circulation, and quench thirst.

Acetum.
Acidum Hydrochloricum dilutum.
— Nitricum dilutum.
— Sulphuricum dilutum.
Ammonii Chloridum.
Potassæ Chloras.
— Nitras.
— Permanganas.
Liquor Ammoniæ Acetatis.
Spiritus Ætheris Nitrosi.

Resolvents (*resolvo*, I unloose).—Agents having the power to dissolve or relax. See Discutient.

Revulsives (*revello*, to draw off).—See Derivatives.

Rubefacients (*rubefacio*, to make red).—Agents which, when applied to the skin, irritate and redden it.

Acetum Cantharidis.
Liquor Ammoniæ (weak solution).
Linimentum Ammoniæ.
— — compositum.
Linimentum Camphoræ Compositum.
Cataplasma Sinapis.
Hydrargyri Perchloridi.
Iodum.
Oleum Terebinthinæ.

Sedatives (*sedo*, to allay).—Agents which depress nervous power without previously exalting it.

Acidum Carbolicum.
— Hydrocyanicum dilutum.
Aconiti Folia.
— Radix.
Antimonii Oxidum.
Antimonium Tartaratum.
Belladonnæ Folia.
Camphora.
Colchici Cormus.
— Semina.
Creasote.
Digitalis Folia.
Extractum Aconiti.
— Belladonnæ.
Hydrargyri Subchloridi.
Hyoscyami Folia.
Ipecacuanha.
Liquor Plumbi Subacetatis.
Opium.
Plumbi Acetas.
Syrupus Papaveris.
Spiritus Camphoræ.
Tinctura Aconiti.
— Camphoræ composita.
— Opii.
Zinci Oxidum.
Ether Spray.

Sialagogues (*σίαλον*, *siălon*, saliva, and *ἄγω*, *agō*, I lead).—Agents which promote or increase the secretion of saliva.

Antimonii Tartaratum.
Hydrargyri Subchloridi.
Hydrargyrum cum Cretâ.
Iodine.
Potassii Iodidum.
Sinapis.
Zingiber.

Soporifics (*sopor*, a heavy sleep, and *fero*, to bring).—See Narcotics.

Stimulants (*stimulo*, to excite).—Agents which rapidly, but transiently, excite the nervous system to increased activity, and which, as a consequence, induce a more energetic performance of the functions of the whole body.

Acidum Aceticum dilutum.
— Hydrochloricum dilutum.
Ammoniæ Carbonas.
Ammonii Chloridi.
Arnicæ Radix.
Assafœtida.
Cantharis.
Capsici Fructus.
Cardamomum.
Catechu Pallidum.
Chloralis Hydras.
Chloroform.
Cinchonæ Flavæ.
— Gentianæ composita.
Gentianæ Radix.
Infusum Cinchonæ Flavæ.
— Gentianæ compositum.
Nux Vomica.
Pimenta.
Rhei Radix.
Sinapis.
Spiritus Chloroformi.
— Rectificatus.
— — tenuior.
Tinctura Aloes composita.
— Chloroformi composita.
Zingiber.
Alcoholic Beverages.

Styptics (*στύφο, stypho,* I restrain).—Agents which arrest bleeding.

Acidum Aceticum dilutum.
— Carbolicum.
— Gallicum.
— Tannicum.
Alumen.
Catechu.
Collodium Hæmostatica.
Cupri Sulphas.
Ergota.
Ferri Sulphas.
Galla.
Gossypium.
Infusum Ergotæ.
Liquor Calcis.
— Ferri Perchloridi fortior.
Liquor Plumbi Subacetatis.
Myrrha.
Plumbi Acetas.
— Carbonas.
Quercus Cortex.
Spiritus Rectificatus.
Tinctura Ferri Perchloridi.
— Gallæ.
— Myrrhæ.
Zinci Acetas.
— Carbonas.
— Oxidum.
— Sulphas.
Cold Applications.

Sudorifics (*sudor,* sweat, and *fio,* to become).—Agents which increase the exhalant functions of the skin, and produce sweating.

Ammoniæ Carbonas.
Antimonii Oxidum.
Camphora.
Hyoscyami Folia.
Ipecacuanha.
Liquor Ammoniæ.
— — Acetatis.
Oleum Terebinthinæ.
Potassæ Nitras.
Pulvis Antimonialis.
— Ipecacuanhæ compositus.
Spiritus Ætheris Nitrosi.
— Camphoræ.
Sulphur Precipitatum.
Terebinthinæ Canadensis.

Tonics (*τείνω, to stretch,* the quality of muscular fibre in an active state).—Agents which gradually improve the condition and functions of the digestive organs, so as to enable the system to acquire increased vigour.

Acidum Hydrochloricum dilutum.
— Nitricum dilutum.
— Sulphuricum dilutum.
Aloes.
Anthemidis Flores.
Argenti Nitras.
Cerevisiæ Fermentum.
Cinchona Flavæ Cortex.
Cupri Sulphas.
Decoctum Cinchonæ Flavæ.
Ferri Carbonas Saccharata.
— Iodidum.
— Peroxidum Hydratum.
— Sulphas.
Gentianæ Radix.
Infusum Cinchonæ Flavæ.
— Gentianæ compositum.

Tonics—*continued.*

Iodum.
Liquor Ferri Perchloridi.
Quiniæ Sulphas.
Rhei Radix.
Sodii Chloridum.
Tinctura Cantharidis.
— Cinchonæ Flavæ.
Tinctura Ferri Perchloridi.
— Gentianæ compositum.
— Myrrhæ.
— Nucis Vomicæ.
Vinum Ferri.
Zinci Acetas.
Sulphas.

Traumatics (*τραῦμα, trauma*, a wound).—Agents applied to wounds.

Collodium.
Myrrh.
Resin.
Tinctura Aloes composita.
Unguentum Terebinthinæ.
Zinci Oxidum.

Vermicides (*vermis*, a worm, and *cædo*, to kill).—See Anthelmintics.

Vermifuges (*vermis*, a worm, and *fugo*, to drive away).—See Anthelmintics.

Vesicants (*vas*, a vessel, a bladder).—See Epispastics.

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